

THE
HORTICULTURAL LEDGER.

1906—No. 7.

[REPRINT FROM THE BENGAL BULLETIN No 8 OF 1905.]

AGAVE AND FURCRAEA SPP.

*CATALOGUE OF ECONOMIC PRODUCTS, Vol. I., A. 602-638 ;
Vol. III., F. 749*

NOTES ON AGAVE AND FURCRAEA IN INDIA

BY J. R. DRUMMOND AND D. PRAIRIE



CALCUTTA
OFFICE OF THE SUPERINTENDENT GOVERNMENT PRINTING, INDIA.
1907.

THE
RICULTURAL LEDGER.

1906—No. 7.

[REPRINT FROM THE BENGAL BULLETIN No 8 OF 1905]

AGAVE AND FURCRAEA SPP.

IONARY OF ECONOMIC PRODUCTS, Vol. I, A. 602-638 ;
Vol III., F. 749

NOTES ON AGAVE AND FURCRAEA IN INDIA

BY J. R. DRUMMOND AND D. PRAIR



CALCUTTA

FFICE OF THE SUPERINTENDENT GOVERNMENT PRINTING, INDIA.
1907.

THE
AGRICULTURAL LEDGER.

1906—No. 7.

[REPRINT FROM THE BENGAL GOLETTES No. 8 OF 1905.]

AGAVE AND FURCRAEA SPP.

DICTIONARY OF ECONOMIC PRODUCTS, Vol. I., A. 602-639 ;
Vol. III., F. 749

NOTES ON AGAVE AND FURCRAEA IN INDIA.

By J. R. DRUMMOND AND L. POLY.



CALCUTTA
OFFICE OF THE SUPERINTENDENT GOVERNMENT PRINTING, 1906.
1907.

THE
AGRICULTURAL LEDGER.
1906—No. 7.

AGENTS.

IN BRITAIN

Mr E. Arnold, 41 & 43, Maddox Street,
Bond Street, London
Messrs Constable & Co, 16, James
Street, Haymarket, London
Messrs P. S. King and Son, 2 & 4, Great
Smith Street, Westminster
Messrs Kegan Paul, French, Trübner
& Co, 43, Gerrard Street, Soho, Lon-
don

Mr Bernard Quaritch, 15, Piccadilly,
London
Mr B H Blackwell, 50 & 51, Broad
Street, Oxford
Messrs. Deighton Bell & Co, Cambridge
Messrs Henry S King & Co, 65,
Cornhill, and 9, Pall Mall, London
Messrs Grindlay & Co 54 Parliamen-
t Street, London, S W

ON THE CONTINENT.

Messrs R Friedländer & Sohn, Berlin,
N W. Carlstrasse, 11
Mr Otto Harrassowitz, Leipzig
Mr Karl W Hiersemann, Leipzig

Mr Ernest Leroux, 23, Rue Bonaparte,
Paris.
Mr Martinus Nijhoff, Hague, Holland
Mr Rudolf Haupt, Halle A S, Germany.

IN INDIA

Messrs.
Thacker, Spink & Co, Calcutta and
Simla.
Newman & Co, Calcutta
R Cambray & Co, Calcutta
S K Lahiri & Co, Calcutta.
Thacker Co, Ltd, Bombay
V Kalyanarama Aiyar & Co, Madras
Higginbotham & Co, Madras
G A Natesan & Co, Madras
S Murthy & Co, Madras
Thompson & Co., Madras
Superintendent, American Baptist
Mission Press, Rangoon

Messrs.
Rai Sahib M Gulab Singh & Sons,
Wufid Am Press, Lahore
A J Combridge & Co, Bombay
Radhabai Atmaram Sagoon, Bombay.
D B Taraporevala Sons & Co, Bombay
Temple & Co, Madras
Combridge & Co, Madras
A R Pillai & Co, Trivandrum
N. B Mathur, Superintendent, Nazair.
kanun-Hind Press, Aliahabad.
Sundur Pandurang, Bombay
Gopal Narayan & Co, Bombay
A M & J Ferguson, Ceylon.

NOTES ON AGAVE AND FURCRÆA IN INDIA

[*Dictionary of Economic Products,*
Vol I, A 602 638, Vol III, F. 749]

By J R DRUMMOND AND D PRAIN



INTRODUCTORY

INTRO
DUCTORY

WHAT is often called "Aloe fibre" collectively is obtained in India from different plants assigned to the genera--

- | | |
|------------------------|--|
| (1) <i>Sansevieria</i> | <i>Nat</i> <i>ord</i> <i>Hæmodoracææ</i> |
| (2) <i>Agave</i> | " <i>Amaryllidææ</i> |
| (3) <i>Furcræa</i> | " <i>Ditto</i> |

Sansevieria yields "Bowstring Hemp" and is dealt with in *Kew Bulletin* 4, April 1887, to which nothing need be added here except that one or more *Sansevierias* appear to have meantime come into commercial use in India

The object of this paper is to clear up so far as possible certain questions of botanical identity with regard to those forms of (2) and (3) that are domesticated in this country, and we have accordingly dealt with their history in some detail in another part of the paper. For those who may care to know our conclusions without following all the steps that have led up to them, the first part will, we hope, be found useful, though it necessarily anticipates a good deal that is more fully discussed in the second

PART I—DESCRIPTIVE

THE first part includes—

- (a) a brief general description of the genera *Agave* and *Furcræa*, limited however as regards the former to the section *Euagave*,
- (b) a description of those* species which are naturalized in India, or cultivated for their fibre, with a key to the species of *Euagave*,
- (c) remarks on certain of the species known in India.

* Also of one species which is neither naturalized nor grown for fibre, viz., the "*False Sisal*"

NOTES ON AGAVE AND FURCRÆA IN INDIA

[*Dictionary of Economic Products,*
Vol. I, A 602 638, Vol. III, F. 749]

BY J R DRUMMOND AND D PRAIN

INTRODUCTORY

INTRODUC
TORY.

WHAT is often called "Aloe-fibre" collectively is obtained in India from different plants assigned to the genera—

- | | | | |
|------------------------|---|----------------|--------------------|
| (1) <i>Sansevieria</i> | . | <i>Nat ord</i> | <i>Hæmodoraceæ</i> |
| (2) <i>Agave</i> | | " | <i>Amaryllideæ</i> |
| (3) <i>Furcræa</i> | . | " | <i>Ditto</i> |

Sansevieria yields "Bowstring Hemp" and is dealt with in *Kew Bulletin* 4, April 1887, to which nothing need be added here except that one or more *Sansevierias* appear to have meantime come into commercial use in India.

The object of this paper is to clear up as far as possible certain questions of botanical identity with regard to those forms of (2) and (3) that are domesticated in this country, and we have accordingly dealt with their history in some detail in another part of the paper. For those who may care to know our conclusions, without following all the steps that have led up to them, the first part will, we hope, be found useful, though it necessarily anticipates a good deal that is more fully discussed in the second.

PART I—DESCRIPTIVE

THE first part includes—

- (a) a brief general description of the genera *Agave* and *Furcræa*, limited however as regards the former to the section *Euagave*,
- (b) a description of those * species which are naturalized in India, or cultivated for their fibre, with a key to the species of *Euagave*,
- (c) remarks on certain of the species known in India.

* Also of one species which is neither naturalized nor grown for fibre, viz, the "*Falsa Saca*."

AGAVE

GENERAL DESCRIPTION OF EUAGAVE AND FURCRAEA

Place in
Classification
of Plants

We have followed Bentham and Hooker in regarding Agave and Furcraea as belonging to the Amaryllidaceae, but whether this arrangement be adopted or not, Agave and Furcraea with a few minor genera form a natural tribe which may conveniently be styled the "Agaveae." It has been proposed to include the "Yuccas" with this, and to elevate Agaveae to the rank of a Natural Order. The objection that this would include types with the ovary "superior" as well as those with it "inferior" is not very weighty (*cf. Engelmann's Collected Works, Cambridge Mass 1887, p 301*)

General
Description
of Flowers

Both in Agave and Furcraea the perianth is divided into six usually uniform segments, in Furcraea these are separated for their whole length but in Agave the "germen" (containing the ovary) is continuous with a cup which surrounds the base of the style and gives rise to the stamens, usually—though not always—at the same level as the free lobes of the perianth, which vary in outline from ovate-lanceolate to narrowly ligulate. In Furcraea the flower is more or less bell-shaped, and the segments broadly ovate, while the stamens often have their stalks dilated and are not inserted on the cup of the perianth but upon a ring which embraces the conical pistil. Moreover the stamens in Agave are doubled back within the bud springing up elastically when the bud opens. The anthers of Agave—which, though absolutely large, are small in proportion to the size of the plant when compared with those of Crinum, or Liliu, for example or of some Gramineae—are versatile. In Furcraea the stalk of the stamens (filament) is stouter and shorter than in Agave, and the anthers, which are usually attached by their backs to the filament, do not overtop the perianth. The style in most *Euagaves* is at first shorter than the stamens, but elongates gradually until it overtops them, after which they shrivel up with the lumb of the perianth segments, but remain attached for some time to the maturing "pod" or capsule. In *A. Wrightii* (*A. tripara* of Wright) the bases of the perianth lobes change in texture, as the ovules ripen, and remain as a beak to the capsule.*

* Engelmann (*loc. cit.* p 304) was led to suppose that the flower in Agave is vespertine or nocturnal. This was due to his having studied *A. virginica* Linnaeus only, a peculiar type which should probably be placed in a separate genus. The

The blossoms (in *Eragave*) are arranged in clusters* on the ultimate offshoots of a compound inflorescence, which consists of a series of main branches given off spirally from the main flowering stem or scape, which attains (e.g., in *A. Vera Cruz, Miller*) a height of thirty-five feet including the panicle. The scape is furnished with scarious bracts, and there are similar but smaller bracts at the origin of the subsidiary branches. The blossoms in *Furcraea* are arranged in rows (with a bract to each blossom) along the secondary branches of the panicle. The arrangement of the main and ultimate branches varies considerably, but is constant and often characteristic for particular species. In all, however, it conforms more or less closely to the well known "candelabrum" structure.

AGAVE

General Description of Inflorescence

The leaves of *Eragaves* are very fleshy, usually ensiform, with a thick base which clasps the trunk by a dilated margin. Above this the leaf is more or less narrowed or constricted, and then broadens upwards to the middle or above it, when it tapers to the point which merges in a cartilaginous prolongation of the leaf margins or is capped by a stiff sharp horny spine which appears to originate in twisted strands of the internal fibres. In *Furcraea* there is seldom even a vestige of a terminal spine, and the tip, though usually involute for about an inch or less, is not ordinarily cartilaginous.

The margins of the leaf are beset at varying intervals with spines or prickles, differing in structure in the different species, but usually consisting of a thin sharp more or less transparent thorn arising from a broader opaque cushion which is formed presumably from the thickened epidermis of the leaf margin. The substance of the leaf is always more or less fleshy, consisting of large loosely compacted cellular tissue traversed lengthwise by a series of vascular bundles which constitutes the "fibre". The structure of these bundles and their direction vary with the species, but in all they appear to arch or interlace

of Leaves

In *Eragaves* are more or less proteranthers as a rule, but are neither fragrant nor nocturnal.

the lateral bud is perhaps analogous to a trunk-offset.

AGAVE

General Description of Leaves

to some extent towards the margins. The cellular tissue is replete, in most species, with mucilage* and different salts, it takes up and stores water in great quantity, and gives out under certain conditions a sweet sap or mead (as in the case of the "Pulque"-producing species). A nectar is secreted also by the flowers of most of the *Eugaves*.

The skin of the leaves is so arranged as to check transpiration (*Mes. Bot. Gard Rep VII, p 52*). True hairs are altogether absent. Certain *Furcraeas* have the cuticle of the under surface of the leaf equipped with minute tubercles, making the surface to the touch like sandpaper.

The leaves are arranged on the trunk or "*caulex*" in a more or less regular spiral, when the spiral is dense, a marked "*rosette*" is formed (as in "*A. uttupara*") in other species again such as *A. sisilana*, the leaves have the appearance of being tufted†. The angle formed by the leaf with the main axis varies greatly as between species: in the same species it is almost mathematically constant.

Frequency of Flowers

All *Agaves* were formerly supposed to require long periods before attaining maturity, and to perish after flowering, but experience has shown that several species are truly *polycarpic*. As a rule, however, the *Eugaves* are *monocarpic*. (Cf *Watson in Gard Chron 1 1897 pp 166-167*)

Not always once in the plant's life

A. americana *Lin* is the most variable as regards the period of flowering, but the recorded instances of prolonged dormancy are due probably to the specimens being cultivated in the north of Europe.

A. Vera Cruz Miller appears to "*pole*" in South Spain after six years on an average, or on the Adriatic after twelve or fourteen, in a naturalized condition. In North India most of the *Agaves* (except *A. americana*, *Lin*) seem to pole from their fifth to their seventh year, but if that be passed without flowering then not till the twelfth or fourteenth.

The Yucatan Indians are said to have a secret by which they can tell when the "*Sacqui*" (a species near to "*sisilana*") is about to pole, and by cutting off the bud poleing is retarded in the interests of the planter.

* *Saponin* is said by several writers to be present in the leaves and roots but recent chemical analysis is reported not to have confirmed this.

† Forming a "*coma*"

** See our *A. Wightii*

When a shoot has blossomed then in ordinary course it dies, but the trunk may give off living offsets, or new buds may form. In certain species, notably in *A. Vera-Cruz* and *A. sisalana*, the suckers often flower along with the parent.

AGAVE

Formation of
Suckers

Poling is accelerated, and may be produced, by injury, by sharp cold, transplantation, or any other sudden change in the condition of the individual. At Algiers in 1830 the French had occasion to clear for military purposes a piece of ground that was much overgrown with Agave and the soldiers were encouraged to destroy the plants, which during 1830-31 they did by hacking the leaves and slicing off the cone of inner leaves by way of sabre practice. In 1832 the whole plain was covered with the bloom of some 1,500 Agaves (*Bull. Soc. Bot. de France IX, p. 116*). The effect of checks to the vegetative system in developing floration are familiar (an every day example is afforded by the pruning back of roses), but for most purposes it may be assumed that any of the Indian Agaves (including '*sisalana*') may flower by its seventh year or even earlier.

The flowers of all the *Euagaves* are partly "herbaceous," i.e., they retain to some extent the special texture and colouring of the vegetative parts, as distinguished from those of a normal perianth. Those parts of the flower (except the pollen) that do not thus lean to the vegetative type are generally of a more or less transparent amber. In *A. sisalana*, and perhaps in other species, the filaments are delicately banded ("fasciated") with a faint pink. The ripe pollen is invariably orange yellow, though the intensity varies with the species and in the same species with the stage of development. There seems little reason to doubt that *Euagave* and *Furcraea* are wholly anemophilous. *Miss Holford* (*Missouri Bot. Gdn. Rep. VII* above quoted) evidently thinks that the high scape and honeyed blossoms serve to attract small birds and large insects. Doubtless they do, and the aid given by this means is through the shaking of the flower or branches. Hybridization under artificial conditions is reported. With the larger species in a state of nature we should think it is of very rare occurrence.

Colour of
FlowerWind ferti-
lized.

All or nearly all the *Euagaves* are profligate, i.e., instead of all the flowers producing ripe seed-bearing capsules a certain number develop buds direct without seeding, which

Production
of Bulbils

AGAVE

General Description of Leaves

to some extent towards the margins. The cellular tissue is replete, in most species, with mucilage* and different salts, it takes up and stores water in great quantity, and gives out under certain conditions a sweet sap or mead (as in the case of the "Pulque" producing species). A nectar is secreted also by the flowers of most of the *Euagaves*.

The skin of the leaves is so arranged as to check transpiration (*Miss Bot. Gard Rep VII, p 52*). True hairs are altogether absent. Certain *Furcraeas* have the cuticle of the under surface of the leaf equipped with minute tubercles making the surface to the touch like sandpaper.

The leaves are arranged on the trunk or "*caudex*" in a more or less regular spiral, when the spiral is dense, a marked "*rosette*" is formed (as in '*A. cuipara*') in other species again such as *A. sisalana*, the leaves have the appearance of being tufted†. The angle formed by the leaf with the main axis varies greatly as between species, in the same species it is almost mathematically constant.

Frequency of Flowers

All *Agaves* were formerly supposed to require long periods before attaining maturity, and to perish after flowering, but experience has shown that several species are truly polycarpic. As a rule, however, the *Euagaves* are monocarpic (Cf *Watson in Gard Chron 1 1897 pp 166-167*).

Not always once in the plant's life

A. americana Linn is the most variable as regards the period of flowering, but the recorded instances of prolonged dormancy are due probably to the specimens being cultivated in the north of Europe.

A. Vera Cruz Miller appears to "pole" in South Spain after six years on an average, or on the Adriatic after twelve or fourteen, in a naturalized condition. In North India most of the *Agaves* (except *A. americana*, Linn) seem to pole from their fifth to their seventh year, but if that be passed without flowering then not till the twelfth or fourteenth.

The Yucatan Indians are said to have a secret by which they can tell when the "*Huacqui*" (a species near to "*sisalana*") is about to pole, and by cutting off the bud poleing is retarded in the interests of the planter.

* Saposins is said by several writers to be present in the leaves and roots but recent chemical analysis is reported not to have confirmed this.

† Forming a "coma".

** See our *A. Wightii*.

DESCRIPTION OF SPECIES.

KEY

- Leaves in section flat to concave but never channelled throughout :—
- Teeth minute, close set Species *A* ———
- Teeth larger, more or less remote —
- Leaves in a lax rosette or tufted never less than 3 feet in length :—
- Perianth segments not constricted towards the tip :—
- Leaves broadest in the middle tapering to both extremities :—
- Leaves oblong lanceolate neck sharply constricted Species *B* (americana, Linn.)
- Leaves linear oblong neck not constricted —
- Marginal prickles pointing uniformly downwards leaf flattish throughout Species *D* (Vera Cruz, Miller)
- Marginal prickles of upper part of leaf pointing upwards leaf deeply trough shaped in upper fourth Species *C* ———
- Leaves hardly widened in the middle very narrow in proportion to their length :—
- Leaves linear lanceolate curving outwards throughout their length, terminal spine acicular Species *E* (Cantala, Roeb.)
- Leaves narrowly oblong, not curving, stiff, erect terminal spine conical from a stout base Species *F* ———
- Perianth segments narrowed from about the middle to the ligulate tip :—
- Leaves straight Species *G* (sisalana Perrine)
- Leaves drooping from their upper third or less Species *H* ———
- Leaves in a close globose rosette never exceeding 3 feet in length Species *I* (Wightii, nobis)
- Leaves in section canaliculate Species *K* (decipiens, Baker)

AGAVE

Agave sp. A

Species A
described

Leaves linear oblong 20-30 in a very lax rosette from a moderately thickened base, deep green with a glaucous bloom, tapering rather quickly in the upper portion, about 5 feet in length and as many inches in breadth at the widest part rather above the middle, marginal prickles minute but sharp, when young garnet-coloured, pointing both upwards and downwards, sometimes absent in the upper portions of the leaf altogether, terminal spine brown, subulate, slightly channelled

INDO CHINA Burma Tenasserim

DISTRIB Unknown

This we suppose to be the same as a plant cultivated in the Saharanpur Bot Garden under the erroneous name of "*A Irtish*"

AGAVE
AMERICANA
described.A Garden
Aloe of
India

Agave americana Linn B

Leaves lanceolate, many in a lax rosette from a short stout prostrate or ascending trunk which is usually hidden by their thick bases, deep green, often variegated with white or pale yellow longitudinal stripes or borders, sometimes rather glaucous at base spreading then ascending tips sometimes recurved, 4 to 6 ft long and as much as half a foot broad above the middle, sharply constricted just above the base margins armed with strong dark brown prickles mostly pointing downwards, leaf edge between the prickles concavely indented, terminal spine slightly grooved dull brown 1 to 2 in long derived from the upper leaf margins which for about three inches from the top are involute and horny, scape with the panicle 15 to 20 ft in height, primary branches of the inflorescence almost horizontal, fascicles of blossoms crowded at the ends of subsidiary ascending branches, germen faintly sulcate about equalling the perianth or shorter than it perianth lobes ovate lanceolate tips obtuse, amber-coloured as are also the filaments, pollen orange yellow, style faintly three lobed capitate, capsule bluntly trigonous or oblong cylindrical, rather broader upwards

Linn Sp Pl (Ed 1) : 323, Kunth, Enum V 819, Thornton, New Illustr agt p 100 (also col fig in Select Plants), Andr. Bot Rep cu t 433 (aphalmate 436),

Bot Mag t 3654, Nees, Gen Fl Germ Monocot Vol iii tab. sec, Reichenb Fl Germ ix t 374 AGAVE
AMERICANA
described

INDIA Large gardens and parks throughout India

DISTRICT Gardens throughout Northern Europe and North America
Native country unknown

The plant, widely naturalized and commonly termed *Agave americana* in Southern Europe, we believe to be *A. Vera-Cruz Miller*. The remarks under *A americana* in *Linnaeus' Species Plantarum* cover both the true *A americana* and *Miller's A Vera Cruz*

A Milleri, Mart Flor Bras iii 1 183 appears to be this species. *A americana, Mart ix Linn*, appears as regards description and synonymy to refer for the most part to *A Vera Cruz Miller*. The description of *A americana* by *Mr. Baker in Gardener's Chronicle N S vi 201 (1877)* gives an excellent account of *A. americana Linn* but the remarks apply in part to *A Vera Cruz Miller*. The Peruvian plant named *A americana* by *Ruiz and Pavon* is perhaps different from either

Agave sp . . . C

AGAVE
Species C
described

Leaves oblong-linear many from a very thick short caudex which is hidden by their greatly thickened bases, dark green, glaucous, spreading from the stem but presently ascending, tips recurved stiffly, blade six feet long and upwards, measuring eight to twelve inches at the widest part some way above the middle and there forming a deep trough through bending of the leaf and rolling inwards of the margins, prickles very stout and black, those above the trough like portion of the leaf spreading or ascending the rest pointing downwards, terminal spine about $\frac{1}{2}$ in long dark coloured [Inflorescence not available]

INDIA: cultivated in the Botanic Garden, Saharanpur received from Europe

DISTRICT Native country unknown

This seems closely allied to *Agave Vera Cruz Miller*. It is known at Saharanpur as *A Jacquiniana*, but it certainly is not the plant figured under that name in *Bot Mag. t. 5097*. The leaves of this species when fresh cut smell like cut Rhubarb stalks, and their juice soon ferments

AGAVE
VERA-CRUZ
described

The Common
Grey Aloe
of India

Agave Vera-Cruz D

Leaves linear-oblong, many, from a short stout trunk which is hidden by their thickened bases, sage green often very glaucous, early curving upwards, the ends usually more or less recurved or drooping, four to six feet long, often rather concave at the widest part which is above the middle and attains a breadth of ten inches and upwards, neck hardly constricted, leaf margins little indented or nearly straight between the prickles, which are broad stout, black or dark-coloured, spreading or decurved, interval between the prickles about half an inch or less, seldom $\frac{1}{2}$ in ; terminal spine shortly channelled, $\frac{1}{2}$ —1 in. long, dark brown, not or very shortly decurrent; inflorescence panicle, trichotomous as regards the main branches which are curved and flattened, blossoms in pairs with a subsidiary bud laterally developed at a different level, germen smooth cylindric longer than the perianth, perianth-lobes linear-lanceolate of a pale amber tint, cup herbaceous, stamens much exserted, anthers half an inch in length and upwards, pollen dull-yellow, style very faintly lobed, capsule rather turgid oblong-cylindrical, tip rounded, seeds black shining. *Miller, Gard. Dict. ed. 8. n. 7.*

Agave lurida, Zuccarini in *Noe. Act. Leop. Carol.* xxi. 2. 670, ff. 49, 50; *Mart Flor. Bras. m. I.* 185; *Bak. in Gard. Chron N S m* 264 (1877) exel var *Jacquimana* and ref.; not of *Jacquin Coll. n. 94, t. I*; nor of *Gaule Bot. Mag.* 1522 *Agave Vera Crucis* *Haw. Syn Succ* 72.

INDO CHINA Burma, Taungtha, *Burkill* 23,777 and other localities in dry central Burma, *Burkill* Assam, *Claes*, *Burkill* 16260! Brahmaputra Valley, frequent, *Burkill* 19958.

INDIA Bengal, Katihar, *Burkill* 20371! Gangetic delta, frequent, Botanic Garden, Shilpur, cultivated. Upper Gangetic Plain, from Tirhoot (in hedges) to Rohtak (S. E. Punjab), *Burkill* 18173, but usually planted, cultivated in Botanic Gardens as far as Lahore Chota Nagpur, Singhbhum, *Burkill* 19759! Central India, Bilaspur Western India, Bombay, cultivated *Burkill* 16682! 16686! Deccan, Miraj, *Burkill* 16712! South India, Bellary, *Burkill*, Chingleput, *Barber* 2401! Cantor, *Barber* 2042, 2065, Chingleput, *Barber* 2086, Kurnool *Barber* 2041, 2068, Salem, *Barber* 2070, Kistna, *Barber* 2501, Coimbatore, *Barber*, 2502, Madura *Barber*, 2503, 2505, Anantapur *Barber* 2513, S Arcot, *Barber* 2516, Cuddapah, *Barber* 2517, Nellore, *Barber* 2518, Tanjore, *Barber* 2529, N Arcot, *Barber* 2531, Bellary, *Barber* 2503, 2533, Godavari, *Barber* 2533, Tennevely, *Barber* 2537, 2491 Vizagapatam, *Barber* 2594, Circars: Parlakemdi, *Burkill* 24120! Ganjam; in hedges at Chattrapur Madras Agricultural Society's Garden cultivated; naturalized in Mysore, *Buller*!

The references in *Aiton Hortus Kewensis* ii. 302 *Willdenow Species Plantarum* ii. 198 and *Gaule Bot. Mag.* t. 1522 are

so confused that the only safe course is to drop all three. The plant dealt with by *Aiton*, though the point is now uncertain, the plant itself having disappeared may possibly have been the *A. Vera Cruz* of *Miller*. The *A. lurida* of *Gawler* figured in the Botanical Magazine is not *A. Vera Cruz*, nor is it any *Agave* known to us at present. *A. lurida* *Jacquin*, cited by *Willdenow* as the same as *Aiton's A. lurida* and as *Miller's A. Vera-Cruz*, is very different from the plant here accepted as *Miller's A. Vera-Cruz*. The difficulty in this case has been due to the acceptance by *Aiton* in *Hort Kew* ed 2, of *Willdenow's A. lurida var a* which is based on *A. Vera Cruz Miller*, but also includes *A. lurida* of *Jacquin*, as equivalent to his original *A. lurida*. That original *A. lurida* may have been *Miller's A. Vera Cruz* or it may have been *Jacquin's A. lurida*, it cannot possibly have been both.

AGAVE
VERA CRUZ

Confused
literature

DISTRIB Native country doubtful probably Mexico naturalized through out Southern Europe south of the Alps and Pyrenees in Southern France and most Mediterranean Islands also in North Western Africa and Atlantic Islands, (not recorded from South Eastern Europe or the Orient): S Africa Mauritius; Ceylon

Agave Cantala Roxb

C

Leaves linear—lanceolate in a lax but even tuft from a short ascending rootstock, pale green sometimes glaucous, older darker tinted, very narrow in proportion to their length which attains 4 feet and more, the greatest width just above the middle being about 3 in, usually $2\frac{1}{4}$ in, curving gradually outwards from their moderately thick bases, or in weak examples bent over almost from their origin, upper surface more or less concave, sometimes trough shaped in the lower portion, marginal prickles large for the leaf conspicuous falcate always ascending $\frac{1}{2}$ of an inch or more in length, very sharp, pale brown or garnet coloured from a small light coloured cushion, terminal spine usually acicular, cylindrical, reddish or dark brown, half an inch to an inch in length, scape with panicle 12—18 feet in height, inflorescence borne on flexuous rather slender branches, fascicles 1-2 flowered, germen equalling or shorter than the perianth, perianth-lobes bluntly linear lanceolate $1\frac{1}{2}$ in long, large in proportion to the germen, cup hardly any, lobes divided nearly to their bases, linear oblong obtuse, greenish yellow [Capsule not available] *Roxb Hort Beng.* 25 *A. Cantala Flor Ind* n 168, *Ed Clarke* 296, *Grah. Cat.*

AGAVE
CANTALA
described

A frequent
Aloe of parts
of India.

AGAVE
VERA-CRUZ
described

The Common
Grey Aloe
of India.

Agave Vera-Cruz

D

Leaves linear-oblong, many, from a short stout trunk which is hidden by their thickened bases, sage green often very glaucous, early curving upwards, the ends usually more or less recurved or drooping, four to six feet long, often rather concave at the widest part which is above the middle and attains a breadth of ten inches and upwards, neck hardly constricted, leaf margins little indented or nearly straight between the prickles, which are broad stout, black or dark-coloured, spreading or decurved, interval between the prickles about half an inch or less, seldom $\frac{1}{2}$ in., terminal spine shortly channelled, $\frac{1}{2}$ —1 in. long, dark brown, not or very shortly decurrent; inflorescence panicle, trichotomous as regards the main branches which are curved and flattened, blossoms in pairs with a subsidiary bud laterally developed at a different level, germs smooth cylindric longer than the perianth, perianth-lobes linear-lanceolate of a pale amber tint, cup herbaceous, stamens much exerted, anthers half an inch in length and upwards, pollen dull-yellow, style very faintly lobed, capsule rather turgid oblong-cylindrical, tip rounded, seeds black shining. *Miller, Gard Dict ed 8. n 7.*

Agave lurida, *Zuccarini in Nov Act. Leop Carol xci. 2 670, ff. 49, 50, Mart Flor. Bras iii. I, 185, Bak in Gard. Chron N 6 iii 264 (1877) excl var Jacquimiana and ref; not of Jacquin Coll v 94, t I, nor of Gaule Bot. Mag. 1522 Agave Vera Cruz Hant. Syn Succ 72*

INDO CHINA Burma, Taungtha, *Burkill 23,777* and other localities in dry Central Burma, *Burkill Assam, Cachar, Burkill 16300* Brahmaputra Valley frequent, *Burkill 19958*

INDIA Lengl, Katihar, *Burkill 20871* Ganges delta, frequent, Botanic Garden, Shalpur, cultivated. Upper Gangetic Plain, from Tirhoot (in hedges) to Rohtak (S E Punjab), *Burkill 18173*, but usually planted, cultivated in Botanic Gardens as far as Lahore Chota Nagpur, Singhbhum, *Burkill 19759* Central India, Bulaspar Western India, Bombay, cultivated *Burkill 10682* 16096 Dacca Miraj, *Burkill 16712* South India Bellary, *Burkill*; Chingleput, *Barber 2401* Canton, *Barber 2043, 2065*, Chingleput, *Barber 2086*, Kurnool *Barber 2041* 2068, Salem, *Barber 2070*, Kistna *Barber 2501*, Coimbatore, *Barber 2502* Madras *Barber 2503, 2505*, Arantapur *Barber 2513*, E Arcot *Barber 2516*, Cuddapah, *Barber 2517*, Nellore, *Barber 2518*, Tanjore, *Barber 2523*, N Arcot, *Barber 2531*, Bellary, *Barber 2003, 2532*, Odavetti, *Barber 2533*, Tinnevely *Barber 2587, 2591* Vizagapatam, *Barber 2594*, Circars Parlakemab, *Burkill 24120* Ganjam, in hedges at Chattrapur Madras Agricultural Society's Garden cultivated naturalized in Mysore, *Butler*

The references in *Aiton Hortus Kewensis* ii. 302 *Willdenow Species Plantarum* ii 193 and *Gaule Bot. Mag. t. 1522* are

which has hardly any cup, the lobes being deeply divided, equal to or longer than the germen, bluntly linear lanceolate thin and faintly striate [Capsule not available]

AGAVE
Species F
described

INDIA Dehra Dun J S Gamble No 23247 Upper Gangetic Plain Etawah Burkill 181341

DISTRIB Native country unknown Planted along Railways in A W somewhat extensively

This species differs from *A. Cantala* Roxb in the stiff upright leaves which are never involute and hardly concave, do not bend outwards and are seldom recurved even at the tip. It also differs as regards the flower which is smaller than that of *A. Cantala* and is more delicate in texture. It appears to be the Agave described by Mr T. Moore in *Gard Chronicle No 37 of 1849 pp 583 and 615* as being in flower in the Chelsea Garden in that year, which he referred doubtfully to the *A mexicana* of Haworth. Mr. Gamble called his plant "*A mexicana*," referring possibly to the species described by Moore which is seemingly distinct from the *A mexicana* of Baker whose "*var cyanophylla*:" (*Gard Chron 1877 viii, fig 36 p 201*) may be the species of Miller's *Figures (vol II p 148 Pl cccxi)*

Agave sisalana Perrine . . . G

AGAVE
SISALANA.

True Sisal

Leaves 20—35, oblong lanceolate, never forming a rosette but closely tufted on the rhizome or on a very short ascending caudex which is completely hidden by their moderately thick bases, the inner making a very sharp angle with the axis, the outer gradually receding but still making less than a right angle, neck not at all constricted, colour deep green, sometimes glaucous, up to six feet long, breadth at the widest part which is just above the middle reaching ten inches, margin with or without prickles, which, if present, are weak, scattered and pale-coloured, terminal spine not channelled, glossy, purple or dark brown, scape 15 feet or more with the panicle, fascicles of blossoms rather crowded, germen equal to or shorter than the perianth slightly broadened upwards, base of perianth convex and somewhat dilated, limb suddenly contracted narrowly ligulate tip slightly hooded, style long very faintly lobed early protruded [Capsule not available.]

INDIA: Introduced into various parts of the country between 1880 and 1902. Cultivated in Burma Cachar and Sylhet, Assam Bengal North West India as far as Lalore, Central India Bombay, Deccan (Poona) Mysore, Madras

DISTRIB Native country unknown* introduced from cultivation in Yucatan in 1834 to islands (Keys) off the peninsula of Florida and thence naturalized. Introduced into the West India Islands partly from Florida partly from the Amorcan continent. Supposed by Schott and Engelm. to be derived from a wild species but further evidence as to Yucatan species is wanting. It is reported to be several in cultivation there. Cultivated in Australia, Fiji, Hawaii and German East Africa.

In India this species varies as regards presence or absence of spines on the leaf margins. We have seen (a) spines fully developed, (b) spines partially and irregularly developed and (c) spines altogether absent on leaves of the same individual plant.

AGAVE

Agave sp

H

Species first
described

Leaves 20—35, oblong lanceolate, not forming a rosette, the inner ascending at rather a sharp angle with the axis from a stout caudex which is altogether hidden by their much dilated bases which attain a thickness of four inches and over,† the ends recurved for about a fourth of the total length and drooping dull dark green very often glaucous reaching seven feet in length and ten inches in breadth at the widest part, which is above the middle marginal prickles distant (at intervals of 1½ to 2 in) stout falcate yellow brown from a broad pale cushion which is inserted in the leaf edge its pellicle being easily separable from the leaf cuticle and leaving a regularly defined lunate scar on detachment of the thorn—terminal spine not decurrent rather short but stout slightly recurved, scape attaining 20 feet with the panicle which consists of rather slender wavy main branches spirally inserted one above the other at about a foot interval on the main stem, fascicles of blossoms somewhat crowded at the ends of the main branches but not thyrsoidly congested perianth about equal to the germen which is rather sharply constricted just below

was *A. sisalana* Perrine and had been introduced (from the West India Islands probably) by Spanish colonists or even previously (cf p. 25 of the same work) by the natives.

† In most Eragines and Furcraeas the outer leaves droop and wither with age and also when the plant is flowering characters taken from the leaves apply to leaves in the prime which are usually in the middle of the series.

AGAVE
WIGHTII
described

decurrent, scape twelve to fifteen feet high with the panicle, which is oblong-pyramidal, the main branches short trichotomous, fascicles rather crowded, germen nearly spindle shaped rather shorter than the perianth and constricted below it, cup of perianth soon dividing into six lanceolate segments each ending in a narrowly ovate lanceolate limb, which is slightly thickened at the obtuse tip and (in dried specimens) obscurely hooded, greenish yellow, capsule brown very broadly turbinate $1\frac{1}{4}$ — $1\frac{1}{2}$ in long rostrate by the indurated bases of the perianth lobes, seeds opaque dull charcoal coloured

Agave vivipara — *Wight Ic 2024, Bak Gard Chron N S* (1877) 780 excl all syn except *Wight*, not of *Linnaeus*, nor of *Hill (Veg Syst xxiii f 56 fig sinistr)* nor of *Villier* nor of *Aiton*, nor of *Dalz and Gibs Bomb Flor* *Agave Cantula*, *Dalz and Gibs Bomb Flor* not of *Roxb*

• INDO CHINA Sylhet Moulvi Bazar planted near villages but not plentiful, *Wyper*

INDIA Bengal Burdwan *Burkill 18930* Hughli Howrah in hedges cult in Botanic Garden Calcutta Thot Turkauki, *Burkill and Prain 19023* Upper Gangetic Plain Moradabad *Burkill 14951* Delhi *Burkill 14063* Rohtak planted in hedges *Burkill 18184* commonly naturalized from Saharanpur and Ludhiana as far as Delhi, *J R Drummond* Cult and naturalized in Hort. Saharanpur, *Duthie* Central India, Gaallor, *Mariesal* Dehra Dun *Basu* Deccan, Barar *Burkill 19170* Buldana *Burkill 19179* Talari *Burkill 16706* Sattara Rd *Burkill* Poona, *Burkill 5816* Western India Bo bay *Burkill 10677* and *10687* South India Madras cult and naturalized in and near Agr Horticultural Society's Garden, Chingleput in hedges *Barber 2402* Madura *Barber 2504* Tanjore Dist *Barber 2515, 2565* Malabar Dist, *Barber 2535*

DISTRICT — Native country unknown A variegated form cultivated in public gardens throughout India is very near this, if not identical

AGAVE
DECIPIENS
described

Agave decipiens Baker . . . K

Leaves fleshy linear many closely inserted on an often erect caudex which attains 3 to 4 feet in height, forming a compact radiating tuft, of which the outer leaves are nearly at right angles with the axis, the inner making gradually an acuter angle, 2—4 ft long, widest just below the middle where the breadth seldom exceeds $3\frac{1}{2}$ in, basal fifth of leaf bluntly trigonous, convex on the sides forming a stalk, upper portion concave often forming a deep U-shaped trough above the middle, the whole leaf stiff, glossy apple-green, more or less recurved and falcate longitudinally, marginal prickles half an

inch to $1\frac{1}{2}$ in apart, red-brown, very small but sharp, base inconspicuous, seated on a deltoid prolongation of the light green leaf edge terminal spine half an inch long and more, with a shallow channel, not decurrent, blackish, very sharp, inclining backwards

AGAVE
DECIPiens
described

[For the inflorescence which we have not seen, we are indebted to Mr. J G Baker (in *Kew Bulletin*, July-Aug 1893, OCLVII False Sisal) as follows,—

Peduncle with panicle about five times as long as the leaves
Panicle 8—10 feet long, with a rather flexuose axis, and usually single dense clusters of flowers terminating the laxly disposed simple arcuate branches

Flowers arranged in dense clusters Ovary oblong finally 2 in long, $\frac{3}{4}$ in diam *Perianth* greenish-yellow, an inch long, tube broadly funnel shaped, lobes complicate lanceolate from a dilated base, twice as long as the tube
Stamens 18—21 lines long, inserted at the middle of the perianth tube, anthers linear $\frac{1}{2}$ inch long *Styles* finally reaching to the top of the stamens]

Cultivated only in Botanical and Horticultural Gardens at Calcutta Saharanpur and Lahore naturalized in Florida with *A. sisalana* Perrine native country unknown

From *Karwinskis* description quoted by *Kunth* (*Enum. V. 835*) *A. Ixtli* Karwinski, a native of Yucatan, should be very near this species The plant sometimes termed *A. Ixtli* in Indian Gardens has nothing to do with *Karwinskis* plant or with *A. decipiens* Baker.

The best known of the fibres called "Istle" or "Ixtli" in Mexico ("Tampico fibre" of the trade) is not derived from any *Euagave* and has nothing in common with *Karwinskis A. Ixtli* except the name The Istle which has been identified by *Spon* and others with *Bromelia siliensis* or *Nidularium Caratae* is of course altogether distinct, but Mr. Dodge has perhaps not hit on the correct solution of the puzzle Mr. J G. Harvey, writing from the state of Vera Cruz, informs us that the Ixtli of that region is a *Bromeliad* which yields a good fibre The confusion has arisen from forgetting that a vague vernacular name may cover half a dozen different species utilised in as many different ways

Ixtli fibre.

Confused
nomenclature

A. Ixtli, Salm (of *Gartenflora* 1893 p 149 cum fig p 150), is identified with "*A. Karwinski*, *Zucco* in *Kunth's Enum V.*

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
PUBLISHED WEEKLY
CHICAGO, ILL.

Subscription prices: Five dollars per annum in advance. Single copies, fifteen cents. Payment in advance. Orders, notices, and communications should be addressed to the Editor, The Journal of the American Medical Association, 535 North Dearborn Street, Chicago, Ill. 60610. Second-class postage paid at Chicago, Ill., and at additional mailing offices. Postmaster: This publication is entered as second-class matter, October 3, 1902, under post office number 384, at Chicago, Ill., under special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on July 16, 1908, and extended and amended July 16, 1911, and July 16, 1912. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on July 16, 1908, and extended and amended July 16, 1911, and July 16, 1912. POSTPAID PERMIT NO. 384, CHICAGO, ILL.

Subscription
and circulation
figures for
1918

Subscription and circulation figures for 1918. The following table shows the subscription and circulation figures for the Journal of the American Medical Association for the year 1918. The figures are based on the data reported by the publisher, The American Medical Association, and are subject to change as more complete data become available. The figures are presented in the following table:

Category	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900
Subscriptions	10,000	9,500	9,000	8,500	8,000	7,500	7,000	6,500	6,000	5,500	5,000	4,500	4,000	3,500	3,000	2,500	2,000	1,500	1,000
Circulation	10,000	9,500	9,000	8,500	8,000	7,500	7,000	6,500	6,000	5,500	5,000	4,500	4,000	3,500	3,000	2,500	2,000	1,500	1,000

The above table shows the subscription and circulation figures for the Journal of the American Medical Association for the year 1918. The figures are based on the data reported by the publisher, The American Medical Association, and are subject to change as more complete data become available. The figures are presented in the following table:

gigantea of De Candolle (*Plant. Succ. Hist.* 126) or **FURCBAEA**
fetida of Jacquin (*Ic. Pl. Rar. F.* 379) which are Species 1
 the same as Plukenet's *Aloe americana radice tuber sa* Nomenclature.
r non spinosa, *Phytog.* t. 258, fig. 2; *Almag.* p. 19,
 leaves of the plant figured by these authors are
 fetid. Nor does it agree with *F. gigantea*, Baker
 on. *N. S. xi.* (1879) p. 623) because the leaves of his
 brown pungent points, whereas in our plant the
 en, blunt and not at all pungent. Further, the leaf
 plant is described as much thinner in the middle,
 of an inch, as against five-eighths to three-quarters
 in our plant. What appears to be the *Agave Agave Foetida*.
innasus is in cultivation as a hedge plant in the
 rden, and is manifestly distinct from either of the
 ted to yield marketable fibre in India.

Utricularia sp. 2

FURCRAEA
Species 2
described.

mply constricted above the base, light green,
obscure, tip cartilaginous ending in a small but
thly recurved yellow brown spine about $\frac{3}{10}$ in.
les of flowering panicle spreading, perianth seg-
lanceolate, obtuse, white, externally greenish with
stripes within, anthers rounded, filaments about
an inch long, dilated, at the widest about $\frac{1}{2}$ of
' ; otherwise, so far as the material goes, very close
ng.

[ysore: Butler 1

description this should be his *F. gigantea*, and it is the same as *Wight Icones* 2025. It seems doubtful if *Commelynii* Baker be the same as *F. Commelynii*, which indeed seems to be the *Agave foetida* of the *Foreraca gigantea* of *Ventenat*. The "type" of South India therefore cannot be with us as *F. gigantea*.

ON CERTAIN SPECIES KNOWN IN INDIA.

omic writers have been constrained either to class
Aloe fibres" all under one head, or to classify
under provisional names such as "*americana*,"—

AGAVE
WIGHTII
described

decurrent, scape twelve to fifteen feet high with the panicle, which is oblong-pyramidal, the main branches short trichotomous, fascicles rather crowded, germen nearly spindle shaped rather shorter than the perianth and constricted below it, cup of perianth soon dividing into six lanceolate segments each ending in a narrowly ovate lanceolate limb, which is slightly thickened at the obtuse tip and (in dried specimens) obscurely hooded, greenish yellow capsule brown very broadly turbinate $1\frac{1}{2}$ — $1\frac{3}{4}$ in long rostrate by the indurated bases of the perianth lobes, seeds opaque dull charcoal coloured

Agave vivipara — *Wight Ic 2024, Bak Gard Chion N S* (1877) 780 excl all syn except *Wight*, not of *Linnaeus*, nor of *Hill (Veg Syst xiii f 56 fig sinistr)* nor of *Miller* nor of *Aiton*, nor of *Dalz and Gibs Bomb Flor* *Agave Cantula, Dals and Gibs Bomb Flor* not of *Roxb*

• INDO CHINA Sylhet Moula Bazar planted near villages but not plentiful
Wyper

INDIA Bengal Burdwan *Burkill* 18930 Hughli Howrah in hedges cult in Botanic Garden Calcutta Tribut Tarakan *Burkill and Prain* 19923 Upper Gangetic Plain Moradabad *Burkill* 149541 Delhi *Burkill* 14963 Poonah planted in hedges *Burkill* 18184 commonly naturalized from Sahmanpur and Ludhiana as far as Delhi *J R Drummond* ! Cult and naturalized in Hort. Saharanpur *Duthie* ! Central India Gwalior, *Marses* ! Dehra Dun *Basu* ! Deccan Berar *Burkill* 19179 Buldana *Burkill* 19179 Takar *Burkill* 10706 Sattara Road *Burkill* Poona *Burkill* 25816 Western India Bombay *Burkill* 16077 and 16087 ! South India Madras cult and naturalized in and near Agri Hort cultural Society's Garden Chingleput in hedges *Barber* 2402 ! Madras *Barber* 2504 ! Tanjore Dist *Barber* 2510 2565 ! Malabar Dist *Barber* 2535 !

DISTRIBUTION — Native country unknown A variegated form cultivated in public gardens throughout India is very near this, if not identical

AGAVE
DECIPENS
described

Agave decipiens Baker K

Leaves fleshy linear many closely inserted on an often erect caudex which attains 3 to 4 feet in height, forming a compact radiating tuft, of which the outer leaves are nearly at right angles with the axis, the inner making gradually an acuter angle, 2—4 ft long, widest just below the middle where the breadth seldom exceeds $3\frac{1}{2}$ in, basal fifth of leaf bluntly trigonous, convex on the sides forming a stalk, upper portion concave often forming a deep U-shaped trough above the middle, the whole leaf stiff, glossy apple-green, more or less recurved and falcate longitudinally, marginal prickles half an

inch to $1\frac{1}{2}$ in apart, red-brown, very small but sharp, base inconspicuous seated on a deltoid prolongation of the light green leaf edge terminal spine half an inch long and more, with a shallow channel, not decurrent, blackish, very sharp, inclining backwards

AGAVE
DECEPIENS
described

[For the inflorescence which we have not seen, we are indebted to Mr J G Baker (in *Kew Bulletin*, July-Aug 1893, CCLVII False Sisal) as follows,—

Peduncle with panicle about five times as long as the leaves
Panicle 8—10 feet long with a rather flexuose axis and usually single dense clusters of flowers terminating the laxly disposed simple arcuate branches

Flowers arranged in dense clusters. Ovary oblong finally 2 in long, $\frac{3}{4}$ in diam. *Perianth* greenish-yellow, an inch long, tube broadly funnel shaped, lobes complicate lanceolate from a dilated base, twice as long as the tube. *Stamens* 18—21 lines long inserted at the middle of the perianth tube, anthers linear $\frac{1}{2}$ inch long. *Styles* finally reaching to the top of the stamens]

Cultivated only in Botanical and Horticultural Gardens at Calcutta, Saharanpur and Lahore. Naturalized in Florida with *A. sisalana* Ferr. as native country unknown

From Karwinsk's description quoted by Kunth (*Enum V* 835) *A. Ixtli* Karwinski, a native of Yucatan, should be very near this species. The plant sometimes termed *A. Ixtli* in Indian Gardens has nothing to do with Karwinsk's plant or with *A. decipiens* Baker

The best known of the fibres called "Istle" or "Ixtli" in Mexico ("Tampico fibre" of the trade) is not derived from any *Enagave* and has nothing in common with Karwinsk's *A. Ixtli* except the name. The Istle which has been identified by Spon and others with *Bromelia elaeagnifolia* or *Nidularium Crinitum* is of course altogether distinct, but Mr Dodge has perhaps not hit on the correct solution of the puzzle. Mr J C Harvey, writing from the state of Vera Cruz, informs us that the Ixtli of that region is a Bromeliad which yields a good fibre. The confusion has arisen from forgetting that a vague vernacular name may cover half a dozen different species utilised in as many different areas

Ixtli fibre.

Confused
nomenclature

A. Ixtli, Salzm (of *Gartenflora* 1833 p 149 cum fig p 150), is identified with "*A. Karwinskii*, Zucco in Kunth's *Enum V*."

AGAVE
DECIPiens

387" and with Engelmann's *A rigida* (387 is a slip for 837), where *A. Karwinsku* of Zuccarini is described from the *Nova Acta Acad. Carol. Leopoldi*, the description not agreeing very well with the sketch in *Gartenflora*, which is like *A. izthoides* of Bot. Mag. 5393 "*A rigida*" of Engelmann, which includes *A sisalana Perrine*, is, so far as *sisalana* is concerned, a very different type of *Enagave*.

FURCRAEA
Species
described

Furcraea sp 1

Leaves 20—40 rather sharply ascending from a short fairly stout trunk forming a compact tuft, obovate-lanceolate, bright green, upper surface glossy, perfectly smooth on both surfaces, 4—6 feet long and upwards, breadth at widest part which is somewhat below the middle 8.5 in., thickness at this point .75 in or under, hardly constricted above the base which is 4 in across by .25 in or less in thickness, margins irregularly furnished with weak spreading prickles, pale below, rust coloured upwards, occasionally quite spineless, margins involute just below the leaf-apex forming for the last .75 in or less a green canalliculate blunt unarmed acumen

[Inflorescence not available.]

INDIA cult in Botanic Gardens Calcutta, Saharanpur, Lal Bagh, Bangalore (also a variegated form) and most public Gardens in India, Dehra Dun, Daru (but probably from a garden) planted by Railways in the Deccan, Miraj, Burkill, planted and naturalized in W. Mysore, Yercaud, and on the Shevaroy Hills, Cameron, near Coonoor Butler!

DISTRIB The native country is not accurately known it is understood to be extensively cultivated from Venezuela to E. Brazil, whence it was introduced by Father Leves almoner (of his order?) to the Mauritius, in the 16th century (Aulet 1305) and from the Mauritius, we suppose, to India, where it is known as "*Mauritius hemp*."

The leaf when crushed exudes a colourless fluid which has a faint but by no means foetid odour. This plant can hardly be

* Both surfaces of the leaf in this *Furcraea* have a minutely punctulate appearance. This under the lens is found to be due to groups of stomata, in each of which the lumen is occluded by an inorganic laminated octal edral body. In *F. Selloa* (and presumably other species in which the back of the leaf has an "emery paper" feel) these occluded stomata are more numerous, and accompanied by minute cones of the same inorganic structure, ending in an edge like that of a cutting diamond, with their sides laminated, embedded in the cells of the epidermis and extruded from a cavity which is probably a metamorphosed stoma-chamber.

For the microscopical analysis we are indebted to Dr Irvine Fortescue, lately Offg. Curator of the Royal Herbarium, Calcutta.

the *Furcraea gigantea* of De Candolle (*Plant Succ Hist* 126) or **FURCRAEA**
 the *Agave fetida* of Jacquin (*Ic Pl Rar T* 379) which are **Species 1**
 apparently the same as *Plukenet's Aloe americana*, *radice tuber sa* **Nomenclature**
fetida minor non spinosa, *Ptylog t* 258, *fig* 2, *Almag* p 19,
 because the leaves of the plant figured by these authors are
 described as fetid. Nor does it agree with *F gigantea*, Baker
 (*Gard Chron N S* ■ (1879) p 623) because the leaves of his
 plant have brown pungent points, whereas in our plant the
 point is green, blunt and not at all pungent. Further, the leaf
 of Baker's plant is described as much thinner in the middle,
 one-eighth of an inch, as against five eighths to three-quarters
 of an inch in our plant. What appears to be the *Agave* **Agave Foetida**
fetida of Linnaeus is in cultivation as a hedge plant in the
 Calcutta Garden, and is manifestly distinct from either of the
 species reputed to yield marketable fibre in India.

Furcraea sp

2

FURCRAEA
Species 2
described

Leaf sharply constricted above the base, light green,
 surface plants obscure, tip cartilaginous ending in a small but
 distinct slightly recurved yellow brown spine about $\frac{1}{10}$ in
 long, branches of flowering panicle spreading, perianth seg-
 ments linear-lanceolate, obtuse, white, externally greenish with
 faint darker stripes within, anthers rounded, filaments about
 four-fifths of an inch long, dilated, at the widest about $\frac{1}{2}$ of
 an inch broad, otherwise, so far as the material goes, very close
 to the preceding

India Mysore, Butler!

By Baker's description this should be his *F gigantea*, and it
 is evidently the same as *Wight Icones* 2025. It seems doubtful
 whether *F Commersonii* Baker be the same as *F Commersonii*
 Salm Dyck, which indeed seems to be the *Agave foetida* of
 Linnaeus and the *Furcraea gigantea* of Ventenat. The
 "Mauritius Hemp" of South India therefore cannot be with
 propriety spoken of as *F gigantea*

REMARKS ON CERTAIN SPECIES KNOWN IN INDIA

Indian economic writers have been constrained either to class
 the different "Aloe fibres" all under one head, or to classify
 them roughly under provisional names such as "*americana*,"—

AGAVE SPP
Indian species
have not been
fully identified

Royle was
aware of it

"*ex parte*," etc (Royle, *Fibrous Plants of India* London 1855, pp 41-50 Watt, *Dict Economic Products*, Vol I, pp 153-44)

Royle was aware (*Ill Himalayan Botany*, p 374) that several species of Agave were naturalized in India, and he gives *Bansleora* as the vernacular name of "*A eupara*", but in his Report on Indian Fibres he did not attempt to discriminate between the species from which fibre was taken for the experiments detailed in his work, the reason obviously being that no one could say what plant was used for any given experiment —

Watt made it
obvious

Sir George (then Dr) Watt (l.c) writes as follows,—

"At the present moment it is next to impossible to arrive at any definite knowledge regarding the species and varieties cultivated for their fibre"

"An important step would be taken were the fibre-yielding plants to be carefully referred to their respective genera. The account of *A americana* in the succeeding pages should be viewed more as *Aloe* fibre plant since it seems probable that the name "*A americana*" is popularly given to a series of species and varieties yielding allied fibres"

The first step indeed towards developing the "*Aloe* fibre" industry in India is to ascertain as accurately as possible what are the species of Agavæ that are already naturalized or cultivated for their fibre, and it is to facilitate this that the present paper has been undertaken. When we know what is already growing in the country, and how different species thrive in particular tracts, the proper authorities will be in a position to deal with the economic history and capabilities of the different species and to advise as to the encouragement of particular kinds in different localities or the introduction of new sorts, just as Agave sisalana was brought in through the efforts of Sir George King, thus reviving the public interest in these products which was weak or dormant so far as India was concerned since the work of Roxburgh was closed in the beginning of the last century.

Why the
identification
has been left
so long

Living plants of this family are not always easy to describe or identify, while their classification by means of herbarium specimens has been so far found to be impracticable. The bulk and habit of the plants,—the similarity of some

forms in their earlier stages,—above all the long and uncertain period of maturity which marks all the Eragaves and most Furcraeas have proved serious impediments to the study even of living Agaves through public and private collections in Europe and America. It is hardly surprising, therefore, that the botanical information should be imperfect (cf. *Zuccasius Pl Nov tel Min. Cogn, Fac I, Ratisla: 1832, p 42*)

As regards the history of the economic species there is much to be found in the great work of Martius (*Flora Brasil Vol III, pars I, pp 190—197*) Following him largely, we conclude that the early European voyagers to the West India Islands found the existing occupants getting sundry products from different Agaveae and Bromeliaceae and that certain kinds were famous for their fibre, which was worked up into various commodities such as thread, coarse twine, nets, bags, and cordage. "Floss" or tow was got from the leaves of a kind which was known to the English adventurers as "*Silk grass*". The dried tissue (medulla) of the flowering stem served for tinder, while a kind of paper,—or rather parchment,—was prepared from the same leaves that produced fibre for string-making. From the "floss" cloth was woven. The leaves of some species contain a detergent mucilage and both these and the roots were ordinarily used for the same purposes as soap until quite a recent period in the West Indies. (For medical uses Martius (10) and other authors cited by him may be consulted.)

Martius believes that the fibre plants and their products were alike known to the Haitians comprehensively as "*Hennequen*," the corresponding term in the Carib dialects being "*Pita*," and he suspects that the Carib Indians took at least one of the Furcraeas,—and the name *Pita*,—to the shores of S America.

From Peter Martyr's account of San Domingo it would seem that the word "*Magney*" or "*Manqu*" also belonged to the native language of Haiti. Be that as it may, the Spaniards took the names *Pita* and *Magney* with them to the mainland, and applied the latter to species of Agave which they found abundantly cultivated on the table-land of Mexico for the sake of the saccharine juice which the leaves distil when cut just before "poling". The plant was known to the Aztecs as *Mell* (a generic term) and the liquor as "*Olli*". Fermented to a kind of cider (with the addition of a herb known as

AGAVE PRODUCTS

Early Travel-
lers to
America
made
acquaintance
of plants.

they found
sundry pro-
ducts to be
obtained by
Haitians and
Caribs from
them

PRODUCTS
AND VERNACU-
LAR
NAMES OF
AMERICA

Hennequen
Pita.

Magney
manguai

Mell

AGAVE
PRODUCTS
Pulque
Aguardiente

Caraguata
Karato or
Curaca

Pati

Sources of
pulque

Sources of
Mescal or
Tequila

Sotol

Mescal

Isthmistle
or
Tampico fibre

Ocpath)*, it was, and is, the national beverage of Mexico—"Pulque" or "Pulco" A spirit is said to be made from the same secretion, and known as "Aguardiente," i.e., "Firewater"

Another name, in the Islands especially, was *Caraguata*, *Karato*, or *Curaca* which applied particularly, it would seem, to the *Furcraea tuberosa*.

"Pati" according to *Hernandez* was the Mexican name for a *Meli* which produced the finest fibre, or tow, and was probably the mainland equivalent of "*Henegu*"

The term "*Pila*" has spread over the world and has been embodied even in the dialects of S India

Recent American investigations have shown (*J N Rose in Contrib U S National Herbarium, Vol V. p 228*) that there are several species of *Eragrostis* which yield 'Pulque,' but the principal appears to be the *A. atrovirens* of *Baron Karwinska*, which is identified by several continental botanists with *A. Salmana* of *Otto* From the descriptions as well as from photographic illustrations that accompany *Mr Rose's* paper, this form must be closely allied to *A. lurida* *H B C*, but abundantly distinct from *A. americana* of *Linnaeus* As regards spirit yielding Agaves, *Mr Rose* states that the spirit is now called "mescal" or 'tequila' and he adds "while it is uncertain from what species *tequil* is made it is at first of *A americana*" Sotol, another alcoholic preparation which the traveller *Lumholtz* derived from a plant 'of the same family as *A americana*,' is produced, not from any Agave at all but from a *Dasylium* *Hernandez* figures a "*Mescal*" that looks like the "*Agave Gilbeyi*" of gardens, which is not an *Eragrostis*.

One other native term requires mention, viz., that of *Isthmistle* or "*Isthle*" which is often applied to the plants that yield the product known commercially as "*Tampico fibre*" from the town of export Recent information as to these will be found in *Mr. Rose's "Notes on Useful Plants of Mexico"* (*Contrib U S National Herbarium, V p 242*) already quoted, as well as about other fibre plants of Central America, but the fact is that there is not a single fibre-yielding species of the Agaves or Bromeliaceae,—to say nothing of *Yucca*,—that can be said to have been as yet sufficiently identified

* In a recent publication this is said to be *Datura Stramonium* Linn., which is improbable; though it may be some other species of *Datura*

"Tampico" or "Lecheguilla" fibre, however, is believed to be got from species that do not belong to *Furcraea* or *Euagave*, and its chief interest for Indian workers lies in the circumstance that "Ixtli" has been also reported as a name for certain Yucatan species of *Agave*, with this consequence (among others) that the well known "Sisal Hemp" (cultivated in the Bahamas and the British East Indies) appears in some botanical works as a variety of *A. Ixtli* Karwinskii or of *A. Karwinskii* Salm. As the descriptive list of species will have shewn, we propose to call the true Sisal *Agave* of Florida and India *A. sisalana*, *Perrine* (ex Engelman) or more briefly *A. sisalana*, *Perrine*.

AGAVE
PRODUCTS
Ixtli applied
wrongly to
Sisal

True Ixtli or
Tampico fibre
seems to come
from no
Euagave—the
group, which
is in India

The species included in our brief Descriptive List are not of course of equal economic value. *B=Agave americana* Linn., is not naturalized apparently in any part of India, but is grown in gardens and about houses as an ornament, the particoloured kinds being in vogue chiefly. Small articles have been made from its fibre as curiosities, or for exhibition purposes, but this species does not seem to be grown or utilized for economic purposes in India, or indeed anywhere. When "*A. americana*" is spoken of as a "*Fibre Aloe*," some other species almost always is intended.

SPECIES IN
INDIA ARE
OF UNEQUAL
VALUE

The true *A.
americana* is
not a fibre
plant

There is a widespread idea that there is quite a number of varieties of "*Agave americana*." There are several variations of the leaf, e.g., with white bands along the edges, or a white stripe down the middle, due to the industry of horticulturists, but,—like other *Euagaves* so far as we have seen,—the essential characters of this well known garden species are particularly constant.

The native country is unknown (*A. De Candolle, Geograph Botanique*, p. 983), but may be in the W India Islands.

As regards the fibre of *Agave D.*, i.e., *A. Vera-Cruz* Miller, (= "*A. surda*" of the Calcutta Garden) we have practically no information. We believe that this is the *Agave* which is naturalized on a great scale in S Europe and N. Africa, in S Europe it is often called "*Agave americana*," and it was most likely the "*American Aloe*" of the earlier writers till Linné appropriated the specific name for the garden plant of N. Europe. In India it is established as a hedge plant in Bengal and S. India, there are specimens from the Bombay neighbourhood also, but how far it may have run wild on that side

A. Vera-cruz
seems to be
the so-called
A. americana
of S. Europe

Distribution
in India.

AGAVES IN INDIA	of India remains doubtful. It occurs with other Agaves throughout the Gangetic Plain as far north as Cawnpore but usually though not always planted. Further to the north and west it seems little known and we suspect that the climate of Hindustan and the Panjab are not well suited to it. In the Royal Garden at Sibpur, where it was introduced by Lord Auckland when Governor-General in 1836, this Agave luxuriates. Its range in Europe (under the continental name of " <i>Agave americana</i> ") is shown in an account and chart in <i>Gartenflora</i> 1875 by H. Hoffmann* (p 70 and t 825 No 1).
A vera-cruz	
Unknown origin	Sharp frosts are evidently fatal to it, unless it is artificially protected. This might be expected if it was the plant which Schiede and Deppe saw wild in the country between Vera Cruz and the table-land of Mexico (<i>Linnaea</i> , IV p 208, 582 etc) but the brief description of that rather suggests <i>A. Wightii</i> .
AGAVE species C	The reasons for giving C a place in the Descriptive List will be found under Part II, where it is suggested that this handsome species (formerly named " <i>Jaegeriana</i> " in the Saharanpur Garden) may be <i>Karwinskii</i> <i>A. atrovirens</i> or some closely allied form.
Agave Cantala perhaps first to reach India.	An important point about the next species in the List (<i>E. = A. Cantala Roxb</i>) is that though utterly distinct from J of the same = ' <i>A. citriformis</i> ' of Wight (in place of which we recommend the name of <i>A. Wightii</i>) it has nevertheless been very frequently confused with it, as will be explained more fully in Part II of this paper. <i>A. Cantala</i> appears to have been the first Agave to reach the East Indies, which it did most likely from the Pacific Coast of Central America. It is well figured in <i>Rumpf's Herb Amboyn</i> , and that illustration is quoted by <i>Roxburgh</i> as applying to his <i>A. Cantala</i> , which he supposed to be a native of India.
Distribution	This seems to be a common hedge plant near Bombay, in the north of Madras, and in the Gangetic Plain, and extends

* He includes certain stat. ons of flower eg in the open in Brittany and the S W of England which are usually given to the true *A. americana* but it is quite possible that the plants which flowered there were *A. Vera Cruz*. *A. americana* seems to be much harder as *Miller* has noted. The variegated specimen (see *Sir W. Hooker's* note in *Sura*) from which plate 364 Bot Mag was taken flowered at Aikenhead in Scotland.

In August 1901 *A. americana* Linn flowered in the open at Kingcombe, Margulter, Lincolnshire in the N E. of Scotland (*Dr. J. J. Fortescue*).

into the submontane Districts of the Agra Province and the Punjab AGAVE 17
INDIA

Fibre has undoubtedly been extracted from this species on a considerable scale, but opinions on its quality are conflicting, Agave Cantala
a fibre plant

In the Dehra Dun and in the Punjab Siwaliks still another Euagave occurs in a half wild condition from which a good fibre has been got for certain purposes, and the same has been planted on a marketable scale in the dry tract between the Chambal and the Jamna. This was sent to the Calcutta Garden as *A. mexicana*, but as will be seen under Part II, *Lamarck's* "*mexicana*" is not a good species, and the rules of nomenclature debar the reapplication of the title to a different species. We have not been able to identify the species clearly with any named Agave of which we have the description, and it has therefore to appear in the Descriptive List anonymously as Agave "F.", but it is pretty certainly the same as a species which blossomed in London in 1849 and was doubtfully referred by Moore to the *A. mexicana* of Haworth (which is not that of *Lamarck*) AGAVE
species F
also a fibre
plant

"H" is a fine Euagave which occurs in several parts of Bengal and the Gangetic Plain as far North as Saharanpur, where it has run wild in the Botanic Garden, and is known, but incorrectly, as '*A. lutea*'. There does not seem to be any record of experiments with the fibre of this species, but the late Mr. Gollan, who had extracted it, informed us that it is of good quality so far as he could judge, and that the leaves are easy for the work people to handle AGAVE
species H

It flourishes under the same conditions as *A. Wightii*, and the two, though otherwise strongly dissimilar, are often found in the same hedge, though not necessarily planted out at the same period

This has the largest leaf of all the Agaves hitherto observed in India attaining 7 to 8 feet and over, with a corresponding breadth, though the leaf is narrower proportionately than in *A. Vera Cruz* for example. We are disposed to refer it to the *Sisalana* group of Euagave. There are specimens from Madras which we had placed under this species, but they seem poorly developed in comparison with those from N India. The largest of
all Indian
Agaves in
leaf

We have not yet mentioned the first species in the List, viz *A.*, which differs from all the others by the margin of the leaf.

AGAVES IN INDIA of India remains doubtful. It occurs with other Agaves throughout the Gangetic Plain as far north as Cawnpore but usually though not always planted. Further to the north and west it seems little known and we suspect that the climate of Hindustan and the Panjab is not well suited to it. In the Royal Garden at Sibpur, where it was introduced by Lord Auckland when Governor General in 1836, this Agave luxuriates. Its range in Europe (under the continental name of "*Agave americana*") is shown in an account and chart in *Gartenflora* 1875 by H. Hoffmann* (p. 70 and t. 825 No. 1).

Unknown origin Sharp frosts are evidently fatal to it, unless it is artificially protected. This might be expected if it was the plant which Schiede and Deppe saw wild in the country between Vera Cruz and the table-land of Mexico (*Linnaea*, IV p. 208, 532 etc.) but the brief description of that rather suggests *A. Wightii*.

AGAVE species C The reasons for giving C a place in the Descriptive List will be found under Part II, where it is suggested that this handsome species (formerly named "*Jacquiriana*" in the Saharanpur Garden) may be *Karwinskii* *A. atrovirens* or some closely allied form.

Agave Cantala (E. = *A. Cantala Roxb.*) is that though utterly distinct from perhaps first of the same = '*A. citraris*' of Wight (in place of which we to each India. recommend the name of *A. Wightii*) it has nevertheless been very frequently confused with it, as will be explained more fully in Part II of this paper. *A. Cantala* appears to have been the first Agave to reach the East Indies, which it did most likely from the Pacific Coast of Central America. It is well figured in *Rumph's Herb Amboyn*, and that illustration is quoted by *Roxburgh* as applying to his *A. Cantala*, which he supposed to be a native of India.

Distribution This seems to be a common hedge plant near Bombay, in the north of Madras, and in the Gangetic Plain, and extends

S. W.
quite
A. C.
spec
was

In August 1901 *A. americana* Linn. flowered in the open at Kingcombe, Margulter, Lincolnshire in the N. E. of Scotland (Dr. Irvine Fortescue).

into the submontane Districts of the Agra Province and the AGAVE IN
Panjab INDIA

Fibre has undoubtedly been extracted from this species on a considerable scale, but opinions on its quality are conflicting. AGAVE Cantala
a fibre plant

In the Dehra Dun and in the Panjab Siwaliks still another Euagave occurs in a half-wild condition from which a good fibre has been got for certain purposes, and the same has been planted on a marketable scale in the dry tract between the Chambal and the Jamna. This was sent to the Calcutta Garden as *A. mexicana*, but as will be seen under Part II, *Lamarck's* "*mexicana*" is not a good species, and the rules of nomenclature debar the reapplication of the title to a different species. We have not been able to identify the species clearly with any named Agave of which we have the description, and it has therefore to appear in the Descriptive List anonymously as Agave "F.", but it is pretty certainly the same as a species which blossomed in London in 1849 and was doubtfully referred by Moore to the *A. mexicana* of Haworth (which is not that of *Lamarck*). AGAVE
species F
also a fibre
plant

"H" is a fine Euagave which occurs in several parts of Bengal and the Gangetic Plain as far North as Saharanpur, where it has run wild in the Botanic Garden, and is known, but incorrectly, as '*A. lundii*'. There does not seem to be any record of experiments with the fibre of this species, but the late Mr. Gollan, who had extracted it, informed us that it is of good quality so far as he could judge, and that the leaves are easy for the work people to handle. AGAVE
species H.

It flourishes under the same conditions as *A. Wightii*, and the two, though otherwise strongly dissimilar, are often found in the same hedge, though not necessarily planted out at the same period.

This has the largest leaf of all the Agaves hitherto observed in India attaining 7 to 8 feet and over, with a corresponding breadth, though the leaf is narrower proportionately than in *A. Vera-Cruz* for example. We are disposed to refer it to the Sisalana group of Euagave. There are specimens from Madras, which we had placed under this species, but they seem poorly developed in comparison with those from N India. The largest of
all Indian
Agaves in
leaf

We have not yet mentioned the first species in the List, viz. *A.*, which differs from all the others by the margin of the leaf.

AGAVES IN INDIA of India remains doubtful. It occurs with other Agaves throughout the Gangetic Plain as far north as Cawnpore but usually though not always planted. Further to the north and west it seems little known and we suspect that the climate of Hindustan and the Panjab is not well suited to it. In the Royal Garden at Sibpur, where it was introduced by Lord Auckland when Governor-General in 1836, this Agave luxuriates. Its range in Europe (under the continental name of "*Agave americana*") is shewn in an account and chart in *Gartenflora* 1875 by H. Hoffmann* (p. 70 and t. 825 No. 1).

Unknown origin Sharp frosts are evidently fatal to it, unless it is artificially protected. This might be expected if it was the plant which Schiede and Deppe saw wild in the country between Vera Cruz and the table-land of Mexico (*Linnæa*, IV pp. 208, 532 etc.) but the brief description of that rather suggests *A. Wightii*.

AGAVE species C The reasons for giving C a place in the Descriptive List will be found under Part II, where it is suggested that this handsome species (formerly named "*Jacquissiana*" in the Saharanpur Garden) may be *Karwinskii* *A. atrovirens* or some closely allied form.

Agave Cantala perhaps first to each India. An important point about the next species in the List (*E* = *A. Cantala* Roxb.) is that though utterly distinct from J of the same = "*A. citrifolia*" of Wight, (in place of which we recommend the name of *A. Wightii*) it has nevertheless been very frequently confused with it, as will be explained more fully in Part II of this paper. *A. Cantala* appears to have been the first Agave to reach the East Indies, which it did most likely from the Pacific Coast of Central America. It is well figured in *Rumph's Herb Amboyn*, and that illustration is quoted by Roxburgh as applying to his *A. Cantala*, which he supposed to be a native of India.

Distribution This seems to be a common hedge plant near Bombay, in the north of Madras, and in the Gangetic Plain, and extends

* He includes certain stations of flowering in the open in Britain, and the E. W. of England which are usually given to the true *A. americana* but it is quite possible that the plants which flowered there were *A. Vera Cruz*. *A. americana* seems to be much harder as Miller has noted. The variegated specimen (see Sir W. Hooker's note in S. S.) from which plate 364 Bot. Mag. was taken flowered at Aikenhead in Scotland.

In August 1801 *A. americana* Llan flowered in the open at Kingcausie, Maryculter, Kincardineshire in the N. E. of Scotland (Dr. Irvine Fortescue).

into the submontane Districts of the Agra Province and the **AGAVE IN INDIA**
Panjab

Fibre has undoubtedly been extracted from this species on **Agave Cantala**
a considerable scale, but opinions on its quality are conflicting a fibre plant

In the Dehra Dun and in the Panjab **Muwahls** still another **Euagave** occurs in a half wild condition from which a good fibre has been got for certain purposes, and the same has been planted on a marketable scale in the dry tract between the Chambal and the Jamna This was sent to the Calcutta Garden as *A. mexicana*, but as will be seen under Part II, *Lamarck's* "*mexicana*" is not a good species, and the rules of nomenclature debar the reapplication of the title to a different species We have not been able to identify the species clearly with any named **Agave** of which we have the description, and it has therefore to appear in the Descriptive List anonymously as **Agave "F."**, but it is pretty certainly the same as a species which blossomed in London in 1849 and was doubtfully referred by *Moore* to the *A. mexicana* of *Haworth* (which is not that of *Lamarck*)

AGAVE
species F
also a fibre
plant

"H" is a fine **Euagave** which occurs in several parts of Bengal and the Gangetic Plain as far North as Saharanpur, where it has run wild in the Botanic Garden, and is known, but incorrectly, as '*A. luri*.' There does not seem to be any record of experiments with the fibre of this species, but the late *Mr Gollan*, who had extracted it, informed us that it is of good quality so far as he could judge, and that the leaves are easy for the work people to handle

AGAVE
species H

It flourishes under the same conditions as **A. Wightii**, and the two, though otherwise strongly dissimilar, are often found in the same hedge, though not necessarily planted out at the same period

This has the largest leaf of all the **Agaveae** hitherto observed in India attaining 7 to 8 feet and over, with a corresponding breadth, though the leaf is narrower proportionately than in *A. Vera Cruz* for example We are disposed to refer it to the *Sisalana* group of **Euagave** There are specimens from Madras, which we had placed under this species, but they seem poorly developed in comparison with those from N India.

The largest of
all Indian
Agaveae in
leaf

We have not yet mentioned the first species in the List, viz **A.**, which differs from all the others by the margin of the leaf.

AGAVES IN INDIA

Agave species A

Agave Wrightii

It may develop a stem

It is included because the Saharanpur plant is possibly the same as a form received in the Sibpur Garden from Burma, and said to be naturalized in that country. Very little is known of this *Agave*, which is also unidentified, further remarks upon it will be found under Part II.

The last naturalized *Euagave* in the Descriptive List is a well-known form in Southern Central and North-Western India. In the N.W. it is looked on (as *A. Cantala* in some parts of India) as *caesi*, or "untrue," but this means no more than that it spreads its life without the direct aid of man, and that there is no current tradition of its introduction. This species should be recognized easily by its round compact rosette, by the rather pale tint of the leaves and their stiff habit. It is the only *Agave* in North India moreover that develops a conspicuous trunk, though this does not always happen.

The division which has sometimes been adopted of *Euagave* into two groups of "caulescent" species and "stemless" seems inconvenient. The same species may under one set of conditions, or at a particular stage of its development, appear to be stemless and yet develop a conspicuous stem or "caulax,"—sometimes on the plan of a small Palm or a *Yucca*,—at a later period or under altered surroundings. The truth seems to be that all the *Euagaves* have more or less a stem above the crown of the rhizome though it usually is concealed by the outer leaves in most of them. At the same time certain species are more apt to develop a manifest trunk than others, although no known *Agave* attains in this respect the stage arrived at by one of the *Furcraeas* (*F. longaeva* Zuccarini). Probably the "caulescent" species shed their outer leaves periodically, pushing up the vegetative cone with more rapidity than the so-called stemless forms do. A trunk which has

Wide spread in India

place in the process which takes place in the species figured by Wright as "*A. ciliopara*" (182024). This well-marked *Agave* is that most widely spread in the drier parts of India from Mysore to the Panjab, though from many intervening parts it has not been reported. It extends to the very south of India and east to Bengal and Assam, but does not thrive well in a damp climate. Wright, following Buchanan probably, referred his plant to the

"*retipara*" of the *Species Plantarum* but that is an utterly ambiguous species not founded on living or Herbarium material so far as we can discover, and the proper course is to drop the name altogether. Miller's "*tieta*," which may be the "*retipara*" of some continental authors, is obscure, but it was certainly remote from the plant of Wight and Buchanan and we have proposed *Agave Wightii* accordingly.

AGAVES IN INDIA

There remains only "G" of the Descriptive List, the "true sisal" which was introduced into Bengal some twelve years ago, as explained in *Bulletin* No 6, 1899 of this Department (*Agave sisalana*).

Agave sisalana

Under Part II, the history of this staple in America is fully considered and reasons stated for re-placing the present scientific name (*A rigida*, var *malin*) by *A sisalana* simply, as was done indeed by Col Prain in the *Bulletin* just quoted.

About the same time that the Bengal Government was bringing "Sisal" into N India, it was being introduced into the Mysore State as set out in an interesting note by Mr Cameron Superintendent of Government Gardens, Bangalore, from which an extract is subjoined as follows —

"Acting on my advice, and kindly assisted by the authorities at Hew, the late Mr Ricketts was able, in 1892, to import 6,000 plants direct from Florida. Prior to this date a few plants of *Agave nuda* had found their way into the Botanical Gardens, but it is quite impossible that the variety *Sisalana* had ever appeared in the Province before. We may therefore take 1892 as the starting period of this important cultivation.

Introduction into Mysore

"The plants from Florida arrived in excellent condition

in an open field which had formerly been cropped with ragi and other dry crops. The bulk of the consignment was therefore laid down in a plot of land measuring only $\frac{1}{2}$ of an acre. With exception of occasional thinning out to relieve congestion and meet small indents, the original plants still remain in this position where they form an overcrowded and conspicuous clump. Suckers were

AGAVES IN
INDIASISAL
Introduction
to Mysore.

allowed to grow and the matured leaves of parent plants have not been cut, hence poling commenced in the 9th year or in 1901 Poling or the growth of the floral axis forming flowers fruit, seed and adventitious buds renders propagation easy as each pole gives birth to upwards of 2,000 buds, which shortly develop into bulblets that mature and fall to the ground

'It will thus be seen that the main object of cultivation in the Lal Bagh during the period under report has been to induce poling and render the plants hardy We shall now have ample material to commence cultivation for another object, if desired, viz, to produce Sisal Hemp, the valuable product of the leaf During the current official year 45 000 plants have been sold for that purpose, at a cost of Rs 1,000, a sum which more than twice covers the original outlay for introducing the species from Florida

In my opinion, cultivation should be left to private enterprise though in the case of arid tracts where raiyat often fails to reward the rayat, it may be feasible to substitute a crop of the kind But that could only be done when a real demand for hemp arises at convenient centres The advantages of the cultivation may be briefly stated as follows —

- 1 Land of a gravelly and stony nature is suitable
- 2 When land is planted up, the cultivation practically ceases for a period of 4 years, or until the matured leaves are ready for cutting
- 3 On suitable land failure of crop has never been heard of
- 4 The profit on an acre of land yielding crop is estimated at £4 to £5 per annum, that is 60 to 75 rupees.

"The large succulent growth obtained in rich land is inimical both to the quantity and quality of fibre produced, therefore somewhat poor land of a loose

stony nature is always preferred, as in addition to giving better results generally it accommodates a larger number of plants to the acre. Mysore possesses plenty of such land, and if the latter can produce leaves of four feet in length it will do. But there is a reduction in value, as well as difficulty in extracting the fibre, when the leaves are under three feet in length. In Yucatan, plants are put out in rows at 7, 8, 9 and even 12 feet apart, according to the nature of the soil. But the general practice is to allow nothing under 400 plants to the acre while 660 is considered about the maximum number. In the Bahamas the planting is somewhat closer. When a plantation is once established it may be profitably worked for a life time, care being taken not to let the plants pole or become exhausted from over cutting. In a large plantation drives are left at convenient intervals to facilitate the easy removal of leaves."

AGAVES IN INDIA

SISAL
Introduction
to Mysore

Recent information on the growing of *A. sisalana* will be found in the Year Book of the United States Department of Agriculture for 1903 (*Washington 1904*, pp 395—396)

The only *Furcraea* that is grown on any scale in India is the "*Mauritius Hemp*". This is established in the extreme S W of India, in N India it has recently been used for fibre with other *Agaves*, but it is not known to what extent it is in cultivation for this purpose, the identification of this species is considered in the Descriptive List under *Furcraea*.

FURCRAEA
IN INDIA

To sum up as regards Indian economic species of *Agave*, those at present known are E,—F,—G,—J of the Descriptive List,—

SUMMARY
OF USEFUL
SPECIES IN
INDIA

E is *Agave Cantala Roxb*

G is *A. —sisalana Perrine*

J is *A. —vivipara Wight*, which we have called instead *A. Wightii*

"F" unfortunately is without a name for the present. It seems intermediate between *A. Cantala* and the *Sisalana* series, and would probably repay investigation

SUMMARY
OF USEFUL
SPECIES IN
INDIA

We suspect that "H" (the large species wrongly called "*lurida*" at Sabaranpui) is also allied to the *Sisalana* group,—and careful experiments upon its fibre are very desirable

"J" will doubtless hold its own as a hedge plant, especially in the drier provinces, but the shortness of the leaf handicaps it as against other species

We know nothing really about *A Vera-Cruz* (D) as regards its fibre but the prickly margin of the leaf has to be reckoned with. This species stands a moist atmosphere rather better than *A sisalana* possibly, but the species "H" is perhaps the most adaptable to varieties of climate. We do not pretend to offer an opinion as to soils for planting *Agave* but botanical considerations as well as experience in the different gardens, suggest that the composition of the soil is not of much importance,—always provided it is well drained and sloped, or elevated sufficiently to guard against water logging. An important factor, of course, in the cultivation of *Agave* or *Furcraea* is the provision necessary to meet the effects of poling, but where space is available this can be met by marking out the plantation into blocks, and planting these on a fixed working plan in successive years so as to maintain a continuous supply of leaves of the proper age from the different blocks in rotation.

In a letter from the State of Vera Cruz the following remarks on the native soil and climate of the *Agaves* occur— "In our rich clay loams here with 125 inches of rain distributed over nearly nine months of the year—as might be expected—*Agaves* are non-existent," but it is added, that "on the Pacific side of the Isthmus, * * * in the State of Oaxaca, where the rainfall dwindles away to 30 or 40 inches with over eight months' dry season, and a gravelly or rocky soil, I have observed *Agave* and *Cacti* in abundance." This lends confirmation to Mr. Cameron's suggestions, but the merit of such situations probably depends on their facility for drainage.

Our reasons for including "K" in the List will be found in the following Part (II) of this paper. It is the *A decipiens* of Mr. J. G. Baker which is possibly the same as *A Ixth* of Karwinsky and is known in Florida as "false Sisal." It is only known in India in Botanical collections at present.

PART II—HISTORICAL AND SYSTEMATIC

THE genus *Agave* was founded by *Linnaeus* on a species which he introduced into the University Garden at Upsala. From an MS. work of his in Swedish, printed at Upsala by T. M. Fries in 1899, it appears that a specimen of the plant which he afterwards described as *Agave folus spinulenta micrantha* in the *Hortus Upsaliensis* (Stockholm, 1718, p. 67) flowered at Noor between Stockholm and Upsala in 1709 and in this MS. ("Hortus Uplandicus") *Linnaeus* identifies the plant that flowered at Noor with the *Aloe ex America* of *Dodoneus* and the *Aloe folia oblonga aculeata* of *Tournefort*. These synonyms among others are given in the *Hortus Cliffortianus* (Amsterdam 1737) for the plant to which he subsequently gave the name of *Agave americana* (Sp. 11 ed. 3, 1764, Tom I 461). We will return to the *Agaves* in *Clifford's* garden later, observing meantime that when first imported into Europe from the New World, *Agaves* were classed by the science of the day with the *Aloe* of *Dioscorides* (or "*Miser Aloe*") owing to the similarity of foliage.

It has been questioned (*Beroloni. Fl. It. IV* 157, also *Pinus Fl. Dalmat.* 1, 12.) whether the *Agave* which has become widely naturalized in Europe was in fact imported and not actually indigenous, but the evidence against any *Agave* being a native of Europe is overwhelming.

The ingenious argument of *Ernst Meyer* (*Bot. Zeit.* 25, April, 1856) turns on a drawing made in the 15th century, or earlier, of a plant said to occur in India, Persia, Greece, and Arabia in a work on *Simples* composed by one *Mathias Platartus*, principal (in the 11th century?) of the Medical School at Salerno founded by *Charlemagne*.

It was introduced into Italy was intended. The *Agave* is known in Calabria and Sicily by different names, of which one at least is derived from the Arabic "*Sabara*" the designation of the *P.*

SUMMARY
OF USEFUL
SPECIES IN
INDIA

We suspect that "H" (the large species wrongly called "*lurida*" at Saharanpur) is also allied to the *Sisalana* group — and careful experiments upon its fibre are very desirable

"J" will doubtless hold its own as a hedge plant especially in the drier provinces, but the shortness of the leaf handicaps it as against other species

We know nothing really about A Vera-Cruz (D) as regards its fibre but the prickly margin of the leaf has to be reckoned with This species stands a moist atmosphere rather better than A *sisalana* possibly, but the species "H" is perhaps the most adaptable to varieties of climate We do not pretend to offer an opinion as to soils for planting *Agave* but botanical considerations as well as experience in the different gardens, suggest that the composition of the soil is not of much importance, — always provided it is well drained and sloped, or elevated sufficiently to guard against water-logging An important factor, of course, in the cultivation of *Agave* or *Furcraea* is the provision necessary to meet the effects of piling, but where space is available this can be met by marking out the plantation into blocks, and planting these on a fixed working plan in successive years, so as to maintain a continuous supply of leaves of the proper age from the different blocks in rotation

In a letter from the State of Vera Cruz the following remarks on the native soil and climate of the *Agaves* occur — "In our rich clay loams here with 120 inches of rain distributed over nearly nine months of the year—as might be expected—*Agaves* are non-existent," but it is added, that "on the Pacific side of the Isthmus, * * * in the State of Oaxaca, where the rainfall dwindles away to 30 or 40 inches with over eight months' dry season, and a gravelly or rocky soil, I have observed *Agave* and *Cacti* in abundance" This lends con-

in the following Part (II) of this paper It is the A *decipiens* of Mr. J. G. Baker which is possibly the same as A *Ixthi* of Karwinski and is known in Florida as "false Sisal" It is only known in India in Botanical collections at present

PART II—HISTORICAL AND SYSTEMATIC

AGAVE
AFR.
AMERICANThe first use
of the term.From a root
meaning
"to turn sour or bitter,"
which the best medical Aloe

The genus Agave was founded by Linnæus on a species which he introduced into the University Garden at Upsala. From an MS. work of his in Swedish, printed at Upsala by T. W. Fries in 1899 it appears that a specimen of the plant which he afterwards described as *Agave Johannisbaptista cucurbitaria*, was in the *Hortus Upsalensis* (Stockholm, 1718, p. 83) flowered at Noor between Stockholm and Upsala in 1709 and in this MS. ("Hortus Upsalensis") Linnæus identifies the plant that flowered at Noor with the *Aloe ex America* of Dodonæus and the *Aloe folio oblongum oculis aëneis* of Tournefort. There are synonyms among others also given in the *Hortus Cliffortianus* (Amsterdam 1737) for the plant to which he subsequently gave the name of *Agave americana* (Sp. Pl. ed. 5, 1760, Tom I. 461). We will return to the Agaves in Clifford's garden later, observing meantime that when first imported into Europe from the New World, Agaves were classed by the sciences of the day with the *Aloe* of Dioscorides (or "*Bitter Aloe*") owing to the similarity of foliage.

It has been questioned (Bertolon, Fl. II. IV. 157, also Fournier, Fl. Drom. I, 184) whether the Agave which has become widely naturalized in S. Europe was in fact imported and not actually indigenous, but the evidence against any Agave being a native of Europe is overwhelming.

The ingenious argument of Ernst Meyer (Bot. Zeit. 25, April, 1856) turns on a drawing made in the 16th century, or earlier, of a plant said to occur in India, Persia, Greece, and Arabia in a work on Simples composed by one Mattioli. *Plantarum principalium* (in the 13th century?) of the Medical School at Salerno founded by Charlemagne.

~ a cusp into Italy was intended. The Agave is known in Calabria and Sicily by different names, of which one at least is derived from the Arabic "*Sabara*" which is still the designation of the *Bitter Aloe* in the North of Africa.

From a root meaning (later also) "to turn sour or bitter," or from a derivative that means "and rocky places," which the best medical Aloe inhabits.

SUMMARY
OF USEFUL
SPECIES IN
INDIA

We suspect that "H" (the large species wrongly called "*hurida*" at Saharanpur) is also allied to the *Sisalana* group,—and careful experiments upon its fibre are very desirable.

"J" will doubtless hold its own as a hedge plant, especially in the drier provinces, but the shortness of the leaf handicaps it as against other species.

We know nothing really about *A. Vera-Cruz* (D) as regards its fibre but the prickly margin of the leaf has to be reckoned with. This species stands a moist atmosphere rather better than *A. sisalana* possibly, but the species "H" is perhaps the most adaptable to varieties of climate. We do not pretend to offer an opinion as to soils for planting *Agave*, but botanical considerations as well as experience in the different gardens, suggest that the composition of the soil is not of much importance,—always provided it is well drained and sloped, or elevated sufficiently to guard against water-logging. An important factor, of course, in the cultivation of *Agave* or *Furcraea* is the provision necessary to meet the effects of piling, but where space is available this can be met by marking out the plantation into blocks, and planting these on a fixed working plan in successive years so as to maintain a continuous supply of leaves of the proper age from the different blocks in rotation.

In a letter from the State of Vera Cruz the following remarks on the native soil and climate of the *Agaves* occur — "In our rich clay loams here with 125 inches of rain distributed over nearly nine months of the year—as might be expected—*Agaves* are non-existent," but it is added, that "on the Pacific side of the Isthmus, * * * in the State of Oaxaca, where the rainfall dwindles away to 30 or 40 inches with over eight months' dry season, and a gravelly or rocky soil, I have observed *Agave* and *Cacti* in abundance." This lends confirmation to Mr. Cameron's suggestions, but the merit of such situations probably depends on their facility for drainage.

Our reasons for including "K" in the List will be found in the following Part (II) of this paper. It is the *A. decipiens* of Mr. J. G. Baker which is possibly the same as *A. Ixthi* of Karwinski and is known in Florida as "false Sisal." It is only known in India in Botanical collections at present.

great part of his earlier life in the Mexican possessions, and was manifestly a close and intelligent observer.

AGAVE
GROWTH OF
EUROPEAN
KNOWLEDGE
ON MAGUEY.

The *Thesaurus* (Cap. XII) gives about twenty different sorts of *Meli* with woodcuts of nine which, though rough, are usually good, but in the case of "*Maguey*" the inflorescence seems to have been added wrongly, as the flower is not that of an *Amargillidea* at all or indeed attributable to any allied order. This is repeated by Morison (*Plant Hist. Oxon. ed. 1680 p. 417 and t. 22 Sect. 4*), for his "*Aloe* (3) *americana flore luteo*" His letterpress is largely taken, as regards the "*American Aloes*," from Hernandez.

16th Century

The earliest mention of the *Maguey* that we have been able to trace is attributed to *Peter Martyr* (*De Rebus Oc. et Orbe Novo, Basel, 1538*) as quoted by *Martius*, l.c., p. 192 and by *Danielli*, *Nuovo Giorn Bot. Vol. XVII, Fasc. II, April 1885*.

Peter Martyr seems to have known the plants, which were produced in San Domingo; he compares them to palms, and says that the inner leaves were eaten by the natives. He further states that the name in the Haitian language signified a drum (or cymbal?). In the older books it is noted that a kind of parchment or paper was made from the leaves of *Agave*, so it is possible that *Peter Martyr* was mistaken, and that the tambourines of the Haitians were called after the *Agave* and not, as the quotation suggests, the plant from the instrument.*

Oviedo (v. *Martius*, also *Danielli*, ll co) in the 16th century mentions at least three kinds of fibre-yielding plants of the West Indies, viz.:—

Oviedo

- (1) *Henequen*, (2) *la Cabuja*, (3) *Maguey*.

Martius (*Beitrag zur Natur- und Literatur-geschichte der Agaven*) has gone fully into *Oviedo's* account and regards four species as indicated; he concludes that the *Maguey Agave* was not "*A. americana*" (of *Humboldt* and others) but a species of the Islands which he specifies as "*Agave vivipara*" He quotes a passage in which *Oviedo* refers to the *Maguey* of the Mainland, and this seems to support the conclusion that the species of the Islands from which soap and fibre are obtained differed from the *Maguey* of Mexico.

From 1568 to 1572 an Englishman named *John Chilton* travelled over nearly the whole of Central America and in his

Chilton

* Zam' usually regis more as II Turkish cy shoot of a s.

AGAVE
GROWTH OF
EUROPEAN
KNOWLEDGE
ON MAGUEY

account (see "*A notable Discourse, etc.*," in *Hakluyt's Voyages, London, 1598, Vol. III, p. 462*) it is noted that, "about Mexico and other places in Nova Hispania there groweth a certain plant called *Magueis* which yieldeth wine, vinegar, honey, and blacke sugar, and of the leaves of it dried they make henpe, ropes, shoes which they use, and tiles* for their houses, and at the end of every leaf there groweth a sharp point like an awle, wherewith they use to bore or pearce thoro' an'jt: g" *Hawkes*, a merchant who resided in New Spain about the same period (*loc. cit.* p. 463) also mentions the "*Magueis*" as the source of a wine which is called "*Pulco*." In 1601 *Hakluyt* published a translation of the "*Descobrimientos*" (published 1563) by *Antonie Galuano* who was Governor of the Portuguese East Indies in the earlier half of the 16th century. This contains a full account (among other wonders of New Spain, such as the Humming Birds) of the Metl or Honey Tree, which is unmistakably the *Maguey* or Metl† of *Humboldt*!

Hawkes

Galuzano

Lopez

F. Lopez de Gomara (author of the *Life of Cortes*) gives a similar but more exact account of the *Metl*, adding that the Spaniards call it *Cordon*.

Acosta

In his *General History of the Spanish Indies* published about the same period *Acosta* (*loc. cit.* p. 68 quoting *Martins*) describes "*El Arbol de las Maravillas es el Maguey*," as a *Purur* or species differing from that of New Spain (*loc. cit.* Mexico).

One Maguey
or Metl in one
place another
in another

From these different histories it is clear that one kind of *Maguey* was known in San Domingo and other West Indian Islands from the time of their discovery by Europeans, and that different plants, probably *Agaves* or *Furcraeas*, which were employed for various economic uses on the mainland were identified with the Island kinds by the Spanish‡ conquerors, of which the best known was the wine producing Metl of the Mexicans. As has been noted, however, there were several kinds of Metl.

* This use is noted in the *Canaries* where *Agave* is naturalized by *Leopold von Buch* (French translation of *Chap. II* of the main work reprinted from *Archives de Botanique* after 1917).

† The early writers who say it was a very comprehensive name connected with the appellation with the honey which does not lie in the perianth of different species of *Agave*.

‡ This was written before we had seen *Martins' "Estrag, etc."* in which he arrives at a similar conclusion.

The Spanish conquests in Central America were established by the year 1525 and not long afterwards at least one species of Agave had appeared in S. Europe

AGAVE.
APPEARS IN
S. EUROPE

Charles de Lecluse (*Clusius*) while travelling in Spain about the third quarter of the 16th century saw a plant growing in a convent garden near Valencia, which he has described as *Aloe americana* (*Rariorum Sturp. per Hisp.* 1576, also *Rar. Pl. Hist. Antwerp*, 1601, p. 160), and identifies with the *Mell* or *Magney* of Gomara, whose account he incorporates. *De Lecluse* took offsets from the convent specimen (which had not yet flowered) and sent one of these to a friend's garden in the Netherlands. M. Charles Martins (*Bull. Soc. Bot. de France*, II, p. 9) notes that the woodcut in the *Historia* was taken from the specimen that was sent to this friend and that this subsequently flowered at Antwerp. This figure gives a fair representation of an Agave of the type of *Humboldt's "americana."*

16th Century.

Clusius found it in Spain, sent it to Netherlands

Almost simultaneously or a little later, *Caesalpino* saw an Agave in flower in the garden of the Bishop Tornaboni, probably near Pisa, which is eloquently described in Cap XXXII of his "*De Plantis*" as "*Alterum genus [viz. Aloes] ex India Occidentale adiectum etc.*"

Caesalpino. Found it in Italy

Danielli says, with much justice, of the accounts which occur from this period with increasing frequency of "*Aloe americana*" having flowered at such and such a spot in Europe, that it is impossible to say which of the species of Agave (Sect. *Eugave*) was seen by the observers; but *Caesalpino's* excellent description suggests that the specimen he saw was not *A. americana* of *Linnaeus*.

These cannot be identified

Cortuso, Superintendent of the Botanic Garden at Padua, had an Agave in cultivation before 1561, which is said to have been the first introduced into Italy (not Europe, as by a slip,—often pointed out,—was stated in the *Species Plantarum*).

Cortuso grew one in Italy

The story that the Agave first flowered in Europe at the papal city of Avignon* in South Eastern France in 1579, seems to rest upon a pious opinion, of which the genesis can be divined by consulting the original authorities (for references see *Danielli*, l.c. pp. 84-85, and *Ch. Martins*, l.c., p. 9 = 11).

France received plant probably from Italy.

* *Danielli* notes that the Agave was probably taken by Italians settled in Avignon to that city from Tuscany. In a French work on the plants of the Trion garden it is said that "*A. americana*" was first brought to Paris from the Mauritius in the 17th century.

AGAVE SPREADS IN EUROPE

An account by *Pierre Borel* a Languedoc an who was some time physician to Louis XIV ("Hortus . . . cum accuratis descriptione etc" *Castries 1666 Paris 1669*) has been the source of sundry evergreen traditions about '*Agave americana*'. Borel is quoted in the *Historia Plantarum* (London 1696, 11 1193) as follows —

Borel had it
near Montpel-
lier, his
account of its
polling

"*Petrus Borellus Aloe plantæ caulem cum perlongum tempus sine eo remanserit tandem erumpere scribit cum fragore et strepitu et impetu facit tota in truncum fere conteritur coram mirantibus hominibus incrementum tantum suscipere ut etiam Quercum mediocrem æquet et 30 circiter palmarem altitudinem et femoris crassitiam acquirit floribusque in summitate decoretur Quodque magis mirandum infra paucos dies [quatuor vel quinque] hanc molem attingere, adeo ut incrementum ejus etiam oculis percipi possit Tale quiddam nuper apud Mompelienses etc credat Judæus Apella'*"

The last three words are not of course in Borel but are *Pay's* comment, and produced later dissertations but the facts collated by *M Charles Martins* (of Montpellier) *Danielli* and others show that the flowering of different species of *Agave* (*Eugave*) in Europe may be delayed from the sixth to the eighth second year of the life of the individual offset

Borel's specimen flowered at *Pezenas* near Montpellier during 1641 and the then King of France with Cardinal de Richelieu and the whole Court went to view it This climate is that in all Europe perhaps most congenial to the *Agave* and in the adjoining Sub Pyrenean County of Rouillon more especially about Perpignan an *Agave* is naturalized on a great scale (*Le Grand in Bull Soc de France XLII p 95*)

Camerarius
boldly consid-
ers to be one
Clusius plant
of Spain and
Netherlands
Tuscan plant,
and *Linnaeus*
A americana

Bock (Tragus) about 1552, and *Mattlioff* in the 1563 edition of the *Kreuterbuch* make no allusion to any plant that could be an *Agave* or *Furcraea*, though they deal fully with "*Aloe*," but in *Camerarius'* edition of the *Kreuterbuch* (*Frankfurt am Main, 1590*) *Aloe americana* is described and two illustrations are given The letterpress is taken from *Cæsalpinus* and *Clusius* almost bodily, but it is expressly noted that the plant had come to North Europe from the West Indian Islands, though the usual identification with the Metl of the American Continent is added One of the figures appears to be copied from *Clusius*, with an addition which will presently be noted The other shows a flowering *Agave* in a gardener's "tub," which might be almost any of the *Eugave* section This was sent by a correspondent in Italy to show how the American *Aloe* "poled" in Tuscany.

The addition to the figure borrowed from *De Lecluse* represents the terminal spine of an *Agave* which can only be that known in English gardens now as *Agave americana* A flower is figured in the margin of the Florentine drawing, which was probably meant to be of the natural size, but this does not agree with either of the species which we suppose to

have been up to that time introduced into South Europe *Camerarius* has helped a good deal, we think, to perpetuate the general assumption that the Agave which has been long cultivated in N Europe (*Agave americana* of *Lingaeus*) is the same species as that which has run wild on the Mediterranean littoral

AGAVE
SPREADS IN
EUROPE

Kaspar Bauhin ("Pinax, etc" Basel, 1671, p 286) gives under *Aloe* (1) *Vulgaris*, (2) *Aloe folio in oblongum aculeum absente*, quoting for the second *Aloe americana* of *Clusius* and *Aloe alterum genus* of *Cæsalpinus* Up to this time authors were contented to distinguish what we now call Agave from the true Aloe, and when further kinds began to be discriminated the definitions did not aim so much at sorting out the species under either genus, but referred to "*Aloe vulgaris*" as the point of departure, which has led to no little difficulty and misunderstanding

K Bauhin quotes a work by *Linschoten* on the East Indies (which we have not been able to consult) for his second *Aloe* but it appears from other sources that *Linschoten* saw or heard of that Agave in Africa or the Atlantic Islands

The earliest reference to Agave in the East Indies that we have traced occurs in a book which professes to contain notes by a pupil of *Boerhaave* of lectures delivered by that acute student of nature towards the close of the 17th century at Leyden This indicates that a species of Agave was by that time established in the Dutch East Indies where it was planted chiefly as a means of keeping out intruders *

AGAVE
APPEARS IN
THE EAST
INDIES

From this work it seems that *Boerhaave* (who taught a system based in the main on an embryological foundation) placed the genus "*Aloe*" in his class of "*Monocotyledones bracteatae*" and recognized in all six species, of which No 3 was the true Aloe from the island of Socotra (for which see *Bailey Balfour, Botany of Socotra, Edinburgh, 1883*) Nos 1 and 2 were also species of Aloe. From the virtues attributed to the fifth and sixth kinds they were evidently Agave (or Furcraea) and American Of the fourth it is said—
"Quanta laudatur pro summo nutrimento in usus humanos, ut incolae testantur circa Mekiam, crescit in ingentem altitudinem folia rigi lassima habet" Haec pro muris in propugnaculis inseriunt

First in the
Spice Islands.

* *Caluano* (v sup) makes no allusion to any Agave as introduced in his time into the E. Indies

AGAVE
APPEARS IN
THE EAST
INDIES

arcendis prædonibus, totum solum spinosum & filamentosum est nostratibus Naeldendraet, succus ex calice est edulis et nutrit ut rapa"

Mekia or Makian is a volcanic island about half a degree north of the Equator in 127° E Long,—the most southerly of the Ternate group, the original Moluccas or Spice Islands. In 1605 the Dutch expelled the Portuguese from the Moluccas, and in 1664 the Spaniards who had occupied Tidore surrendered that also. In the meantime the colony on Makian had been destroyed and scattered by a great eruption and earthquake in 1646, but the island was reoccupied after a few years, only to be laid waste again some twenty-five years later. We know that there were two ports on the South Sea coast of New Spain for trade with the Philippines and Moluccas, and that ships were built at one of these expressly for the South Sea navigation so that plants from Mexico might easily find their way to the East Indian Archipelago in the 17th century, but it is remarkable that *Valentyn* ("Amboyna," *Dordrecht*, 1726) makes no allusion to the Agave though he includes in his List of native and cultivated Trees and Plants the *Lidah Boaya* (= Alligator's Tongue) or true Aloe.

Rumpf (*Herb Amb V* pp 271-274, tab *XOIV*) gives a full account of *Lidah Boaya* as "*Sempercitum majus viducum*" which he introduced into *Amboyna* in 1661, and notes that it differs from the *Aloe americana* of *Clusius* "that being more akin to *Pandanus*" "*Sempercitum*," it may be noted, was a name applied, it is said, to the true Aloe by the traders of Antwerp, who often kept a plant hanging from their roofs as a curiosity.

Burmah—the editor of the *Herb Amb*—adds a later note by *Rumphius* dealing very fully with another succulent plant that was first brought to his notice in a deserted plantation (near Amboyna apparently) in 1697, but was spreading in the Colony. The natives called it *Aanas ulan*, i.e. 'woodland (or wild) pineapple,' or *Nana boaya* (*Bwaya* = crocodile in the Malay lingua franca, i.e. *Crawford*, etc) and said that it had been introduced from Macassar—*Rumpf* compares his plant, of which the figure as regards the general habit is excellent, with the *Aloe americana* of *Clusius* which he knew only by description, noting at the same time that there are discrepancies between his living plant and the description which may be due to climate or casual variation.

The note concludes by remarking that the plant seems to multiply by proliferous gemmation (i.e., from what he calls the second sort of flowers or false blossoms) or by suckers or in either manner, but his observations could not be completed, for which he gives reasons

AGAVE
APPEARS IN
THE EAST
INDIES

Rumpf's plant we consider is an *Agave* that is established as a denizen in India, and is markedly distinct from the species naturalized in S Europe, as well as from the true *Agave americana* of *Linnaeus*, namely (E) of our Descriptive List—*A Cantala*, Roxb

This plant
not the same
as those then
in Europe

We must now return to the "American Aloe" in Europe. *Hermann*, Professor of Medicine and Botany at Leyden, in his Catalogue of the Botanic Garden there (1687) enumerates five species of *Aloe* of which three are true *Aloes*, one is the "*Aloe folio in oblongum aculeum abeunte*" of *K Bauhin's Pirax*, while the fourth from the figure (at p 17) is an *Euagave* which he describes and calls *Aloe americana sobolifera*. It was brought from America and flowered in a private garden at Harlem shortly before the compilation of the Catalogue

KNOW
LEDGE IN
RAY'S TIME

In the *Historia Plantarum* (Lond typ Maria Cleri, 1688, pp 1195—1201) Ray describes four species of the true *Aloe*. He then deals with *Aloe americana* and distinguishes,

Ray's
enumeration

- (1) *Aloe americana*, Clusius
- (2) *Aloe americana minor*, Munting
- (3) *Aloe serrata major umbellifera*, Munting
- (4) *Aloe purpurca lactis*, Munting
- (5) *Aloe brasiliensis* (= *carajuta*) Marligraf

Three species of *Caraguata* (all of Marligraf*) follow, and the chapter concludes with

- (6) *Aloe ferox*, Munting

Ray's succeeding chapter discusses certain species described by *Hernandez* (v supra) under Mexican names which Ray considered (though not without doubt in some instances apparently) to be referable to the group (so to speak) of *Aloe americana*. Two of these had been included in the previous chapter (VII)

Before discussing the identity of Ray's species it will be convenient to refer to certain other authors mostly his contemporaries. *Plukenet* (London 1696)

* We have not made extracts from the works of *Piso* and *Marligraf* (ed *De Laet Amsterdam ap Elsevir 1655*) because all that is important in their writings can be traced in works ordinarily more accessible

AGAVE
APPEARS IN
THE EAST
INDIES

arcendis praedonibus, totum solum spinosum & filamentosum est nostratibus Naeldendraet, succus ex calice est edulis et nutrit ut rapa"

Mokia or Makian is a volcanic island about half a degree north of the Equator in 127° E Long,—the most southerly of the Ternate group, the original Moluccas or Spice Islands. In 1605 the Dutch expelled the Portuguese from the Moluccas, and in 1664 the Spaniards who had occupied Tidore surrendered that also. In the meantime the colony on Makian had been destroyed and scattered by a great eruption and earthquake in 1646, but the island was reoccupied after a few years, only to be laid waste again some twenty-five years later. We know that there were two ports on the South Sea coast of New Spain for trade with the Philippines and Moluccas, and that ships were built at one of these expressly for the South Sea navigation, so that plants from Mexico might easily find their way to the East Indian Archipelago in the 17th century, but it is remarkable that *Valentyn* ("*Amboyna*," *Dordrecht*, 1726) makes no allusion to the Agave though he includes in his List of native and cultivated Trees and Plants the *Lidah Boaya* (i.e. Alligator's Tongue) or true Aloe.

Rumpf (*Herb Amb V* pp 271—274, tab *XOIV*) gives a full account of *Lidah Boaya* as "*Sempercivum majus indicum*" which he introduced into *Amboyna* in 1661, and notes that it differs from the *Aloe americana* of *Clusius* 'that being more akin to *Pandanus*' "*Sempercivum*," it may be noted, was a name applied, it is said, to the true Aloe by the traders of Antwerp, who often kept a plant hanging from their roofs as a curiosity.

Burmah—the editor of the *Herb Amb*—adds a later note by *Rumphius* dealing very fully with another succulent plant that was first brought to his notice in a deserted plantation (near Amboyna apparently) in 1697, but was spreading in the Colony. The natives called it *Nanas atan*, i.e. 'woodland (or wild) pineapple,' or *Nana boaya* (*Bwaya* = crocodile in the Malay *lingua franca*, & *Crawford*, etc) and said that it had been introduced from Macassar—*Rumpf* compares his plant, of which the figure as regards the general habit is excellent, with the *Aloe americana* of *Clusius* which he knew only by description, noting at the same time that there are discrepancies between his living plant and the description which may be due to climate or casual variation.

(a) is a true *Aloe*, and (d) a *Tillandsia* or allied *Bromeliaceae*

AGAVES
DISTIN-
GUISHED
ABOUT
RAY'S TIME

(b) should be *Agave americana* of Linnaeus, because Kaspar Bauhin, Clusius and Cæsalpinus are cited for the species, but its identity with the Mexican "Metl" or "Manguel" is questioned, very full references being given to the Spanish and English authors, who had dealt with the "Metl"

The local name of the Jamaican plant is given as "Caraca," and it is said to be frequent on the stonier and drier hills of that island

Several accounts of "Caraguata" are referred to also, and we may say at once that "Caraguata" or "Keratto" is a comprehensive name locally applied in different countries to different Agaves, though usually, perhaps, to certain species of *Furcraea* but in America to sundry *Bromeliaceae* also

Keratto a
loose term

(c) is identified by Sloane with the Henequen of older travellers, and he suggests that it may be one of the "*deux dermées pites qui n'a des petits picquans aux feuilles comme l'ananas*" mentioned by Du Tertre, as well as the "*Pati seu Metl lenissimum*" of Hernandez. Of this he says "*ad margines viarum Insulae Jamaicae locis campestribus et sylvestribus crescentem observavi*" Martius (1c) observes that the name "Henequen" belongs to the ancient language of Haiti, and was applied in the Antilles indiscriminately to different species of *Furcraea* and *Agave*, the corresponding Carib term being "Pita." There are other grounds for thinking that the Sisal Agave had been already naturalized in the West Indies before its recent re-introduction, and on the whole it seems likely that the Pati of Hernandez and Sloane's Henequen represent *Agave sisalana*, Perrièr

Towards the end of the same 17th century the Commelins, — Jan and Kaspar (uncle and nephew) — were successively in charge of the Amsterdam Garden, and published tracts on different species of Agave, the most important for the present purpose being the younger Commelin's *Excursus* in the *Præcludia* (Leyden, 1703) on a species which he describes and figures as *Aloe americana polygona*, and identifies with Munting's *Aloe americana minor* which is Ray's No II

By the
Commelins

Commelin, relying, as we suspect, on Ray, or perhaps Munting, who were in their turn influenced no doubt by the drawing in Hernandez, says that his plant is the *Theometel* of

AGAVES. the Spanish author Mr. Baker (*Gard Chron* 1877, col. VII, p. 200) keeps up an *Agave Theometel*, *Zuccagni*. *Zuccagni* identified his species with the *Theometel* of *Hernandez*, but Mr. Baker remarks that it may be a mere variety of

RAY
REVIEWED. Ray's first
Euagave is *A. americana*

A. americana *Linn*
Returning now to the *Historia Plantarum*, Ray's first Euagave is clearly *A americana Linn.*, and his second we may take as = *A Theometel* of *Zuccagni*. In his account of the uses of the first he has not escaped the general confusion, and attributes qualities to the *A americana* of N Europe gardens which it cannot claim, but the species that he meant to indicate was that which *Linnaeus* afterwards named "*americana*," although *Clusius* is cited

His second
apparently is
A Theometel

His third is
no Agave

The third kind of this group rests on a description which seems to be quoted from *Hermann* but is not to be found in the *Paradisus* or the *Catalogue*. This description answers to the woodcut of the "*Maguey*" in *Hernandez*, which as already said cannot be an Agave

Boerhaave (*Catalogue of Plants in the Leyden Garden* 1720) does not refer to it, and from the flowers it cannot be *Hermann's* "*sobolifera*" with which *Plukenet* and others have identified it

His fourth is
apparently *A*
Sisalana

There remains the *Aloe purpurea laevis* of *Munting* of presumed Agaves. As already said we think this must have been *Agave sisalana Perrine*, though the purple tint ascribed to the edges of the leaves would fit *Sansevieria* better; as it happens, however, the leaves of the bulbils in *A. sisalana* as well as the species *H* of our descriptive list are spotted with violet-purple, which we have not observed in any other Euagave.

His first
Caraguata
and second
seem Agaves
of section
Littaea.

The first *Caraguata* (*aloe brasiliensis*) seems to be an Agave of the *Littaea* group; and the second may belong there also

The third (*caraguataguacu*) has been usually supposed to be a *Furcraea* and is probably = *Furcraea tuberosa, Aiton*.

His third
probably a
Furcraea.
His fourth a
Bromeliad

The *Caraguata açanga* manifestly belongs to the *Bromeliaceae* and is doubtless, as observed by Ray himself, the *Mexocotyl* of *Hernandez*.

AGAVES OF
LINNAEUS.

In the *Hortus Cliffortianus*, 1737, *Linne* describes certain species of *Aloe* (out of which, as before, we exclude all but those belonging to the tribe or natural order of Agavæ) as follows:—

1 *Aloe folius lanceolatis dentatis spina cartilaginea terminatis radicalibus* [Synonyms] *A folio in oblongum aculeum abeunte* Bauh Pinax [Morison's tab 22, f 2 and 3 are also cited, of these fig 2 is that of *Clusius* without the addition made by *Camerarius*] *Aloe secunda*, etc, Sloane, *Aloe americana muricata* Bauh Hist, [and] Boerhaave, *Aloe americana* Beal Eyst, *Aloe alterum genus ex India occidentale* Caesalp Syst 418 *Caraguata guazu* Markgr Bras 87 [A variety is given as *Aloe americana ex vera cruce folius latioribus et glaucis* Comm hort 2 p 31 t 16,—and the native country is said to be "in sterilibus aridioribus et saxis collibus americanis jamaicae, etc"]

AGAVES OF
LINNÆUS

13 *Aloe folius lanceolatis integerrimis patentiusculis aculeis terminatis radice caulescente* [Synonyms] *Aloe americana viridi rigidissimo et fatido folio* Piet dicto indigenis, Kiggelaar in Comm hort 2 p 35 t 18, Boerhaave Lugdb 2 p 129 n 10, *Aloe americana tuberosa fatida major* Pit Pita Herm. Prod 306, *Aloe americana radice tuberosa minor* Pluk. Alm 19 t 258 f 2. [Native country] Cusaco

[A variety is described as *Aloe americana folius angustioribus ex Vera Cruce* Hort Carol 4]

The figure cited under 13 from the *Hydrographia** is referred in the *Almagestum* (p 19 as cited by Linnæus) to *Aloe americana radice tuberosa fatida major* Pit Pita P II P * * * *Eadem minor non spinosa* which *Plukenet* identifies with *Aloe americana viridi rigidissimo et fatido folio* Piet dicto indigenis of the Hort Beaumont but these identifications cannot be relied on and all that can be said is that *Linnaeus* Harlem plant as pretty certainly a spineless *Furcraea*

With respect to 1, it is a fair inference that *Linnaeus* looked on the two distinct plants that are often included under *Agave americana* on the continent of Europe as forms of one species

The two confused plants of Europe

We have not been able to inspect** the figure published by the elder *Commelin*, but there is every likelihood that the glaucous variety of Clifford's collection was the type known in the Calcutta Garden as *A. lurida* and long supposed to be identical with the *Agave lurida* of *Aiton's Hortus Kewensis*. Thus garden possesses plants received from the great collection of *Sir Thomas Hanbury* at *La Mortol* as *Agave lurida*, which appear to us

* What follows applies to the only copy to which we could refer—the *Eadem minor non spinosa* is what we should now call a subspecies, made by *Plukenet* himself

** Since seen, it is evidently *Agave lurida* H B C = *A. Vera-Cruz*, Mull

AGAVES OF
LINNAEUS

His No 4

is a synonym for his *cucipara*. In the text of *Commelin* nothing is said of the stamens being equal to the corolla; and it is expressly stated that the *Aloe americana sobolifera* of Hermann, which *Linnaeus* excludes altogether but compares with his *cucipara*, is a totally different plant from the *polygona*.

Commelin is positive that his *polygona* is the *Aloe americana minor* of *Munting* and his engraving corresponds with *Ray's* description (based on the *Aloidarium* presumably), but the further identification with the *Theometel* of *Hernandez* rests on the statement of a ship's captain who had brought the plant to Europe as a febrifuge with the native name *Theometel*, which *Hernandez* had rendered as "*Maguay divinum*"

Wight
mistook it

Aloe americana minor, however, from the description would seem to differ from the plant which is figured by *Wight* (*Icones*, 2024) as naturalized in India and referred to the Linnæan "*cucipara*". *Wight's* species which is at once recognizable from other *Euagaves*, has a strong likeness to a rough sketch in *Hernandez*, but this is not his *Theometel*.

Linnaeus
thought
Rumph's
Amboyna
plant his
No 2

In the 2nd ed. of the *Species Plantarum*, *Linnaeus* added as a further synonym for his "*cucipara*" *Aloe americana*, *Rumph* 5 p 273 t 94. *Rumph* did not intend apparently to identify his plant with that of *De Lecluse*, but in any case it is certain that they are perfectly distinct whether what *De Lecluse* saw was *A. americana* of *Linnaeus* or another species. If *De Lecluse's* drawing was taken from an offset, as is stated, it was probably = *A. lurida* *H B K*, but it is difficult to separate young plants of this from true *americana*.

Following the later editions of the *Species Plantarum*, the real plant of *Rumph* has been often called *Agave cucipara*, especially in the East Indies.

Dillwyn made
Sherard's
plant to be
Linnaeus
No 1

In the *Hortus Elthamensis* (*Amsterdam* 1774) *Dillwyn* figures a plant in *Sherard's* garden (in England) which is styled on the plate *Aloe barbadensis minor lacte cirens et splendens* in a Latin in which the plants are harmonized with the *Species Plantarum* this is reduced to *Agave americana* of *Linnaeus*.

If the identification be correct and the specimen came from Barbadoes this would show that the true "*americana*" was then in the West Indian Islands, but the drawing is indifferent.

JACQUIN'S
A. LURIDA

In the fourth volume of the *Collectanea* (*Vienna*, 1780, p 94 t 1) *Jacquin* figured and described his *Agave lurida*, which he identified with a species published under that name in the *Hortus Kewensis* of *Alton* (1st ed, London, 1789), at the same time stating that it was well known in Botanic Gardens as the

Aloe ex Vera Cruz, but had flowered for the first time at Schonbrunn, where it had been received in 1753 from Holland JACQUIN'S
A LURIDA

The description does not quite fit any *Eugave* with which the writers are acquainted, the coloured figure shews a plant* which, whatever it may be, is not *A. americana*, Linn, nor *A. lurida* of the Calcutta Garden. It may be presumed that the *Vera Cruz Aloe* of gardens was either identical with the *Aloe ex vera cruce*(1) of the *Hortus Clifortianus* or was so far like it that the two were identified. Aiton (in the 2nd edition) does not say that his *Agave lurida* was the *Vera Cruz Aloe* of Miller, but he quotes Willdenow who took his *A. lurida* from Aiton's 1st edition and Willdenow gives two varieties, of which *folius latioribus* is expressly said to be the *Agave Vera Cruz* of Miller. Willdenow arranged his *Agaves* under two groups—*Acaules* and *Caulescentes*,—*lurida* being in the latter

Willdenow
thought this
conspicuous
with *A. Vera
Cruz*

Turning now to Miller (*Gardener's Dictionary*, VIII ed) who, though he made full use of the Linnæan genera, adhered in the main to Ray and Tournefort, we find three *Agaves* of the *Species Plantarum*, viz —

MILLER'S
EIGHT
AGAVES

- 1 *A. americana* 2 *A. fatida* 3 *A. vivipara*

He had No 3 in cultivation and describes it as *folius reflexis marginibus dentatis*, and identifies it with the *Aloe sobolifera* of Hermann without hesitation, though Linnaeus was doubtful and Commelin says flatly that they have nothing in common. Willdenow had concurred with Commelin, at the same time questioning Linnaeus' citation of Rumphius

His *vivipara*
is not Wight's
Indian *vivi
para*

We may say at once that the *Agave in para* of Miller must be utterly distinct from the plant of Wight's *Icones*

Miller's second species is *Agave (virginia)*† which is altogether different from Linnaeus' *A. virginica*

The following plants not known to Linnaeus are common to Miller and Aiton—

Gard. Diet

Hort Kewensis (2nd ed)

- (1) *Agave tuberosa* = *Furcraea tuberosa*
(2) *A. Karatto* = *A. americana* B *folius margine fuscis*
(3) *A. rigida* = *A. lurida* B *folius angustioribus*

* The capsule at 1 seeds are those of *A. Wightii nobis*, which would seem (from Schiede) to occur near *Vera Cruz* in plenty

† & ‡ as sometimes quoted "*virginica*" following a mistake by Martyn in Vol. I of the *Gardener's and Botanists Dictionary*, London 1807.

MARTYN
ON AGAVE.

With *Agave (virginia)* this makes seven species Miller's eighth and last is *Agave (Vera Cruz)* which from his description is *Agave lurida* H B C, or a very closely allied species

Sherard's
plant at Cam-
bridge

In the tenth Edition of the *Gardener's Dictionary* (edited by Thomas Martyn London 1807) in which there are numerous alterations there are a few notes of

Possibly two
Agaves were
then in
England

a true *Agave americana* Linn Again Mr Lowell flowered an *Agave* in 1723 at Hoxton about which there was controversy the owner maintaining that specimens flowered in England previously were not the true great American Aloe which suggests that there was at least one other species of the *Agave-Furcraea* group then in cultivation The third note is worth extracting

Helges in S
Europe

'There are now hedges of the common *Agave* in Spain Portugal, Sicily and Calabria it flourishes also about Naples between Tullus and Mo iaco and in other parts of Italy It is the common *Agave* of the Mediterranean is the *Indica* of the Calcutta Garden

WHAT IS W
INDIAN
SO CALLED
A AMERI
CANA

We have seen that *Linnaeus*, for the sake of brevity perhaps, omitted the Jamaica habitat for his *Agave americana* from the *Species Plantarum* while *Sir Hans Sloane* has given what should be the same plant as a native of stony barren hills in that island, stating that the local name is *Curaca*

Dr Patrick Browne in his "*History of Jamaica*" (London, 1789) states that an *Agave* is indigenous and common in Jamaica the name is *Coroto* or *Curaça* He gives several synonyms, of which one is the Linnæan description of "*A. virginea*" with the specific designation omitted, but no weight can be attached to these citations because *Bauhinia* species, which in the *A. americana* of *Linnaeus*, is included, to say nothing of the *Aloe sabellica* of *Hermann Grisebach* (*Flora of the Indian Islands*, London, 1864, p 582) quotes *Browne* for the occurrence of *Agave americana* Linn in Jamaica He also notes that he has seen specimens from Antigua and (naturalized) from S Europe, and the E Indies As it happens, *Agave americana* Linn, is not naturalized anywhere in the

* In the "*Figures of Plants*" (London 1760 Vol II p 143 Plate CCXXII) which were designed to illustrate the earlier editions of the "*Dictionary*," *Miller* has given an *Agave* that flowered at the Chelsea Garden during 1757 *Martyn* says this was a mere variety of *A. americana* which does

East Indies Grisebach no doubt had seen Herbarium specimens labelled "*A. americana*," but belonging to another species. He observes that no other *Agave* occurs in West Indian collections, but refers to the *A. Antillarum* of Descourtillz comparing it with *A. sobolifera* of Salm-Dyck, which that author understood to have come from Haiti and Jamaica.

W INDIAN
SO CALLED
A AMERI
CANA

A. sobolifera of Hermann seems to be a well marked species, it is figured* by Lamarck (*Encyc. Method. que*, Pl. 235, fig. 1) as *A. crispata*, L. '*A. americana*, Rumph.' is quoted as a synonym, and Commelin (*Praeludia*) is also cited. Lamarck's plant is said to occur in San Domingo (i.e. Haiti) and Jamaica. It seems likely that the account of Browne relates, in part at least, to a *Furcraea*, and that this led authors to refer to the *Agave crispata* of the Species Plantarum, which had stamens not exceeding the corolla. On the other hand both Browne and Descourtillz lay stress on the conspicuous yellow colour of the blossoms, and it is quite possible that two or more species of *Eragrostis* are diffused in the West Indian Islands, one being Hermann's '*sobolifera*,' which seems to be very little known, if known at all, in England.

It may be
confused with
a second
species

Lamarck is quoted for another book species which hardly admits of practical identification, viz. *Agave mexicana* (*Diet. I. p. 58* and *Encyc. Meth. I. 241*). In either work the plant is said to be the *Magney* of the Mexicans. *Furcraea odorata*, Persoon, and *Agave cubensis*, Jacq., are given as synonyms which are = *Furcraea cubensis* Vent. The *Encyc. Meth.* gives no description, and that in the *Diet.* plainly indicates *Furcraea*, so that *Agave mexicana* falls to the ground as a species. His *Agave americana* is evidently = *A. lurida* H. B. C., as he says it was naturalized in S. Europe, and he had seen living specimens.

Lamarck's *A. mexicana* is
no species

His *A. americana*
is the *A. lurida* of
India

In Roemer's *Collectanea* (Zurich, 1809, p. 138, Tab. I) Zuccagni figured and described an *Agave*, which he identified with the *Theometel* of Hernandez. The description might be meant for the species figured by Wight in the *Icones*, but we hardly think, after full consideration, that they can be identical. Roemer's main engraving is not very good and follows possibly that

ZUCCAGNI'S
A THEOMETEL

* The figure appears to be taken from Hermann

DESFON
TAINES
AGAVES

of Commellin's "*Aloe polygona*" (which is not cited, however), but the enlarged drawings of the flower do not match the Indian "*acipara*" It is not stated whence this Agave was brought to the Florence Botanic Garden, where it flowered, and was described in 1806 by Zuccagni.

The List of Agaves in the *Jard n D: Roi* published at Paris by Desfontaines (1815) is as follows:—

- (1) *americana* L.—var *egala*
- (2) *lurida*, Jacq Coll }
mexicana }
angustifolia
- (3) *escipara* L
- (4) *fetida* L
- (5) *Manguai* }
bulbifera Bonpland }
- (6) *yuccifolia* Rox. Lal
- (7) *spicata* Dec Cal

Nos 6 and 7 are well known species of a different group from the Eragrostes, with which alone we are so far concerned in India. No (4) is a *Eragrostis* so must probably was No (3)—No (1) was evidently true *Agave americana* Linn. Desfontaines must have seen the naturalized *Agave* of S. E. rope and Africa and as he doubted the identity of his No 2 with the *larida* of Jacquin it was very possibly = *A. larida* HBK., i.e., *Agave americana* of Clusius. The suggestion that it was the *A. mexicana* which the bracket implies supports this.

SUMMARY OF AGAVES KNOWN A CENTURY AGO

In the beginning of the 19th century, therefore, it appears that the following species of *Eragave* and *Eurcea* were known to science, viz. —

Agave (Euagave)

I Agave americana Linn

Origin unknown, cultivated as an ornament in the gardens of Europe

II Agave Vera Cruz Miller

Introduced from Mexico, probably the *A. americana* of Clusius naturalized in S Europe and N Africa (= *A. lurida* H B G)

* The number 22 is correct

† Hib. II III C possesses a specimen from Teres in S Spain collected by F Bourges (No 463) named *A. americana* by Cosson which is identical with the *A. furcata* of the Calcutta Garden. This No of F Bourges is quoted by Nyman (*Copeia* XI Europ) for *A. americana*, L. n., which he gave as naturalized along the shore and in the islands of the Mediterranean.

The figure (98) of *A. americana* in *Batlon Hist des Plantes*, XIII 16 is a fair portrait of *A. lorida* II B C particularly as regards the inflorescence. The enlarged sketch of the flower is decisive.

III. *Agave Theometel Zuccagni*,

Native country doubtful, probably the N.-W. of Central America; flowered at Florence, 1806, or earlier;

not = *A. vivipara*, Linn

nor of Lamour.

nor of Schultes Syst. VII. p. 717

nor of Kunth Enum. V. p. 823

nor = *A. vivipara* of Wight Ic. 2024

perhaps = *Theometel* of *Hernandez (Anton. Recch. VIII. p. 274)

SUMMARY
OF AGAVES
KNOWN A
CENTUR
AGO

IV. *Aloe sobolifera* of Hermann,

Native country doubtful, perhaps the Antilles and =
A. sobolifera Salm-Dyck (Kunth Enum. V. 822)

V. *A. lurida*, Jacquin (Collect. Ic),

Native country unknown;

not = *A. lurida*, Ait.

nor = *A. lurida*, Gawler (Bot. Mag — 1522)

nor = *A. lurida*, Baker in Saunders' Refugium (V. 307)

nor = *Aloe americana*, Clusius

nor = *A. lurida* H.B.C.

VI. *A. (species)* (sub "*Sempervivum minus*.") Rumph. Herb. Amb. (ed. Burmann, p. 273 t. 94)

Native country unknown, introduced before 17th century to Amboyna; probably = *Nasden-draet* of Dutch settlers in Moluccas mentioned by Boerhaave;—

not = *Aloe americana* of Clusius

nor = *A. americana*, Linn.

nor = *A. vivipara*, Linn.

nor = *A. vivipara*, Lam.

nor = *A. vivipara*, Wight

but = **A. Cantala*, Roxb

* Pr V. Salm-Dyck, who appears to have suggested that Rumph's plant was a Bromeliaceae, had probably never seen *A. Cantala* Roxb.

- VII *Aloe Yucca folia* of Sloane, Cat p 118 in part
= *Henequen* of Ouledo
= *Pati seu Mell lenissimum* of Hernandez
(Ant Recch p 275)
Native country unknown, cultivated and natural-
ized in the Caribbean region,—perhaps =
A sisalana, Pirrme.
- VIII *Quetzalychitl quem alii Mell Pitae vocant* (Hernandez
l.c.)
Native country unknown, cultivated in Central
America If this was a *Eugave* it is
possibly = our *A Wightii*
- *IX *A Keratto* Miller (not of *Salm-Dyck*)
Native or naturalized in the island of St Christo-
pher
(We have excluded from the list of *Agaves* all forms that
we refer to *Furcraea* as also a few the identity of which
is at present hopelessly involved and doubtful)
Furcraea
- 1 *F. gigantea* Vent.
Native country unknown, cult and naturalized
from Central America and the Caribbean region
to Northern Brazil
 - 2 *F. Commelynii* Salm-Dyck
= *Aloe americana tuberosa minor* of Comm Hort
Amst 2 f 19 (f Salm-Dyck) (= Kunth
Enum c 842)
Native country doubtful
 - 3 *F. tuberosa*, Aut.
= *Agave tuberosa*, Mill (excl *A Commelynii*
f Salm-Dyck) native or cultivated and natu-
ralized (?) in West Indian Islands
 - 4 *F. cubensis*, Vent
= *Agave cubensis* Jacq (also Willd)
= *Agave mexicana*, Lam
Native country unknown,—naturalized in the
Caribbean region and introduced in S America

It thus appears that with scanty exceptions the original
home of these forms of *Agaves* is not satisfactorily established,

* *Agave rigida* Miller is excluded as its identity is altogether doubtful

while at least three kinds (all of Agave) that had been described by pre-Linnean authors remain unidentified. The localities mentioned in the old books give no certain clue, because the writers did not distinguish between native species and those naturalized or even between wild and cultivated forms.

HOMES OF
THESE
AGAVES

Agave americana is believed by Martius (*Fl. Brasil III P I p 187*) to be a native of high mountains in Mexico, but his authority is not given and the plant was probably a different one. *Furcraea tuberosa* Ait., is reported by Seemann from the slopes of Chiriqui, a volcano on the borders of Panama and Costa Rica (*Hemsl. Biolog. Central A. et I. c. app. p 273*). A statement by another traveller is quoted for the occurrence of *Agave americana* wild in the same belt on Chiriqui at 4,000—8,000 feet above sea level, but Mr. Hemsl. thinks that the *Furcraea* may have been mistaken for it. We think there can be little doubt of this, and further that the *Magney cimarron* (the wild magney) seen by Schiede and Deppe in the "regio frigida" of Mexico Proper, whatever it may have been, was not true *A. americana* (Linnaeus: IV 581). The very circumstance that the Mexicans distinguish the mountain sort as wild shows they are well aware that *die allbekannte A. americana*, as Dr. Schiede styles the Pulque Agave, is unknown except in cultivation.

Pulque Agave
only in
cultivation

The first account we can trace of any Agave in India Proper is in a series of papers by Dr. W. Roxburgh which exists in two forms, one of these pamphlets was printed officially, the other appears in the XXII Vol. of the transactions of the Society of Arts of London 1804 (which voted its thanks to the author), under the title "*Observations on the culture, properties and comparative strength of Hemp, Sun, Jute, and other vegetable fibres the growth of India*".

LITERA-
TURE ON
AGAVE IN
INDIA

Roxburgh.

In a comparative statement appended with the "*Observations*" we find "*Agave americana*" given as No. 11 of the staples on which Roxburgh had conducted experiments.

In the official correspondence the same plant is described as a new Agave, in both it is referred to as found wild in plenty, though where is not stated, and there can be no doubt that the species is that afterwards described in the *Flora Indica* (Ed. C. B. Clarke p. 296) as *A. cantala*.

LITERATURE ON AGAVE IN INDIA

Roxburgh gives origin of three species

Voigt takes up wrong names for one

He has two other—gone A. lurida as above the other A. Vera Crucis introduced 1836

In the *Hortus Bengalensis* (Serampore, 1814) three *Agaves* are shown as cultivated in the Calcutta (Sibpur) Botanic Garden, viz —

- (1) *A* Cantala R.* (2) *A lurida* (3) *A tuberosa*

No (1) is noted as introduced before 1794 from India, and as having a Sanscrit name which would now-a-days be transcribed as "*Kantala*" No (2) is said to be a native of America, (date of introduction not given) A footnote states that No (3) had been received from Kew, but that the species was then already in the Garden (from America 1799) under the name of "*Yucca superba*"

In the *Hortus Suburbanus Calcuttensis* (Bishop's College, 1845) there is no *Agave Cantala*, but a *Fourcroya Cantala* of Haworth appears as synonymous with the "*Agave Cantala*" of the *Flora Indica* The Bengali name is given as "*Dilat Ananas*" and the source, doubtfully, as the Moluccas or S China Graham (*Cat Bombay Plants*, p 272) is cited, also Rumpf (i.e) the usual error being admitted as to Rumpf having called his plant "*Aloe americana*"

What Rumpf said was that the Amboyna "*Aloe*" was a very different vegetable from the true *Aloe* or "*Sempervivum*" (Lidah Boaya) and was manifestly akin to *Clusius' Aloe americana*, the differences being due perhaps to soil and climate

We have not seen the original* work of Haworth, but his transfer of Roxburgh's "*Cantala*" to *Fourcraea* was pretty surely an error. Voigt (*Hort Suburb* i.e) further gives "*Fourcroya tuberosa*" (no doubt the "*Yucca superba*") and two *Agaves*, viz, 1 *lurida* and 2 *Vera Crucis Haw* He says expressly that his "*lurida*" is that of the *Hortus Bengalensis* The first edition of *Anton's Hortus Kewensis* issued in 1789, so that it is possible that Roxburgh's "*A lurida*" was named with reference to that work, but it does not follow that the Calcutta plant and that of Kew (which appears to be extinct) were identical

As regards the *A Vera Crucis Haw* of Voigt, there is happily a clear record A note by Wallich in the unpublished records of the Sibpur Herbarium shews that this was introduced

* The name is spelt in the *Hortus Bengalensis* has priority and the species is therefore *A Cantala*, Roxb not *A Cantala* as in the *Flora Indica*.

** Since seen: the emendation is gratuitous, Roxburgh's plant is a true *Agave*

from the Chelsea Garden by Lord Auckland during 1836, and was looked on by Wallich as doubtfully distinct from the existing "*lurida*" There can be little question that the plant Haworth meant was Miller's "*Vera Cruz*" Agave, and this presumably is the *Vera Cruz* variety of the *Hortus Cliffortianus* also, that it is the present "*lurida*" of the Calcutta Garden we consider certain What the "*lurida*" of Roxburgh's day may have been remains to be seen, if indeed we are to think that it was distinct from the "*Vera Cruz*" of the *Hortus Suburbanus*, but it certainly was not "*Cantala*" Roxburgh's "*Cantala*" seems to have been lost between 1840 and 1847, at which period extensive alterations were in progress. There is a Catalogue of 1847 (which is however probably not exhaustive), in which no Furcraeas are shown, and only two Agaves, viz, *A americana* Linn. and *Vera Cruz* Haworth. The "*americana*," if it was the true *americana* of Linnaeus, must have been a recent introduction, because this is included in Voigt's list of garden desiderata.

LITERATURE ON AGAVE IN INDIA

Was Roxburgh's *lurida* different from *Vera Cruz*?

The next after Roxburgh to observe an Agave naturalized in India was Dr. Francis Buchanan (afterwards Hamilton).

The following is from the "*Journey*" (London 1807, p 36) [march of 6th May 1800, Baydamangulum to Tayculum]

'The natives here plant also many aloes (*Agave vivipara*) in their hedges and use the leaves for making cordage. It forms a strong defense against both man and beast, and thrives better in the arid soil of Mysore than in any other place that I have seen—its Canarese or Karnataca name is *Ravana Mesid*'

Buchanan Hamilton found planting of an Agave going on in Mysore

There is nothing to show why Buchanan named his plant (which is pretty certainly the same as Wight's) *Agave vivipara*, but most likely he was led by Linnaeus' citations in the *Species Plantarum*

Moon's Catalogue (Colombo, 1824 p 25) gives as growing in Ceylon *Agave americana*, *A lurida*, and *Furcraea tuberosa*. No authorities are cited but as the English name of "*lurida*" is given as '*Vera Cruz*' (Aloe) the species doubtless was = *A lurida* H B C What Moon's *A americana* may have been, we cannot say, and the same applies to records from the Mascarene Islands, from the Cape of Good Hope, and Saint Helena also. A St Helena plant cultivated in the Botanic Garden at Butenzorg (Java) has been described as a distinct species by Hærold under the name of *A angustifolia*.

Moon had 3 species in Ceylon

In the Flora Capensis (Stuttgardt, 1823) Thunberg mentions "*Agave americana*" as naturalized on Table Mountain, etc.

Certain Agaves have been long naturalized in the Mauritius. Mr Baker (Flora of Mauritius 1877) shows *Agave americana* and *Furcraea gigantea* as established. A *Furcraea* known as '*Mauritius Hemp*' is grown in parts of Southern India.

Naturalisation in Africa.

LITERA-
TURE ON
AGAVE IN
INDIA
Graham found
one species
at Bombay

In his *Catalogue of the plants of Bombay and its vicinity*, Graham has the following—"1572 *A Cantala* Roxb Flora Ind 2 p 167 *Aloe americana* Rumph Hort Amb 5 t 94 "A stately *Aloe* looking plant, the central scape rising to the height of 16 to 20 ft, flowers in rains in gardens, Bombay, Seroor "There is a variety with long flexuous leaves The seeds germinate in the capsules before they drop off, as in *A usipara*"

The common *Agave* of to day in hedges near Bombay and Poona is a plant which we identify with Rumpf's figure and with Roxburgh's '*Cantala*'. It seems doubtful if there are specimens of this from the New World in European collections, unless it be *Agave lara* of Zuccarini (for which see Baker in Gard Chronicle Vol VIII 1877 p 780, figure 151) Mr Baker's figure is not unlike a form that is common in hedges at Saharanpur (in the Agra Province) This form was referred by the late Mr Gollan to an *Agave* that is identical with specimens recently collected in the Bombay neighbourhood, which we refer to *A Cantala*.

Species at
Saharanpur
in 1855

The Saharanpur Catalogue of 1855 shews the following,—*A procumbens* *A tuberosa* *A cantala*, *A americana*, and *Littaea geminiflora*. The last named is an *Agave* of a different section from the *Eugaves*, and for our purpose negligible. The "*A tuberosa*" was probably a *Furcraea* which is still represented in the Garden though not naturalized anywhere in N India. "*A americana*" probably covered *A americana*, Linn (cultivated in the Garden solely) as well as a quite different species which has run wild in waste places and hedges through the whole Civil Station. On what authority we have not been able to discover, the second species has been called "*A lurida*" at Saharanpur for some time past. To this Saharanpur "*lurida*" (which is not=*lurida* H B O) the natives give the name of "*Rāmbanskeora*" to distinguish it from the ordinary "*Banskeora*" which at Saharanpur is usually applied to Wight's *A viripara*.

In Dr Jameson's Catalogue *Banskeora* = appropriated to his *Agave procumbens*" but this is possibly a slip. If however the vernacular name was deliberately restricted to *A procumbens* then *A procumbens* was most likely meant for Wight's *viripara* the allusion being to the way the trunk often lies along the banks of ditches and other places where *viripara* luxuriates particularly near the old Fohlia fortifications.

If *procumbens* was=*viripara* (Wight) then *A cantala* must have been Roxburgh's species.

The *Agaves* now existing in a naturalized condition in and about the Saharanpur Garden are as follows,—

AGAVES
NOW AT
SAHARAN-
PUR.

(i) *A. vitipara* (Wight)

(ii) *A. Cantala* (Roxb)

(iii) *A.* not named, (believed by Mr Gollan to be merely a form of the preceding) may we think be the same as Graham's "flexuous" variety of *A. Cantala*. It seems to have everywhere a poor reputation as a fibre plant, which is not the case with *A. Cantala* proper. This unnamed form has a weedy habit, the outer leaves often bending over almost from their point of origin.

(iv) "*A. lurida*" (Saharanpur)

A. Cantala is said to be widely spread in the Dehra Dun, and to extend to the outer* Himalaya, where it is used for hedges, but further enquiry is called for as to this, because it has not been always distinguished from another *Eugave* of which the Calcutta Garden possesses specimens descended mostly from seed sent by Mr J S Gamble, F R S, from the Dehra Dun some years ago under the name of "*A. mexicana*". Fibre was manufactured in the Dehra Jail formerly from a naturalized *Agave* described in accordance with the ordinary practice as "*Agave americana*". It is doubtful if fibre has been ever made, save as an experiment, from the true *A. americana* of Linnaeus, which does not exist in the Dehra Dun, or anywhere else in India for that matter, so far as we know, in sufficient quantity.

DIVIDED
OPINIONS

The difficulties that confront the student in dealing with the *Agaves* are well illustrated by the case of Roxburgh's species. Mr. Baker (*Gard Chron* 1877, Vol VIII p 780) refers *A. Cantala* of Roxburgh to *A. vitipara* of Linnaeus 'at any rate as regards the synonymy Rumph Amb Vol V p 273 tab 94' and at the same time cites the *A. vitipara* of Wight as another synonym. His view has been followed, as the best authority then available in *Kew Bulletin* No 39, March 1890, CXXXV (Bombay Aloe Fibre). He further identifies *A. Cantala* with *A. Ruphii*, Hassk (*Cult Hort Bogor*) which purports to be the plant figured in the *Herbarium Ambonense*. Rumph's plate has often been taken for the plant figured by Wight, but on due examination of live specimens the

The possi-
bility of *A. Can-*
tala being *A.*
Rumphii of
Java

* To about 3000 ft above sea level in the station of Mussooree

COMMENTS ON A CANTALA resemblance vanishes. Hasskarl published his species in a supplement to "*Flora*" (II 1842 p 5) as follows —

Zollinger
wrongly
called the
Javan plant
A Cantala

"*Agave Rumphii* n. sp. *Acaulis foliis linear-lanceolatis, canaliculatis acuminatis spinis marginalibus nigris rigidis sursum alicuatis, scapo ramoso dein cespitose, staminibus corollam longe superantibus Corollæ limbo revolute Ch. Sprg. S. V. II. 79—Willd Sp Pl II 195 Schl VII 127 Rumph Amb. i 273 t. 94 Nom Sund Nannas sabrang=Bromelia tiansmarina."*

He does not cite *A. Cantala* Roxb. as a synonym, and the revolute segments of the perianth of his description do not suit any species as yet observed in India. Zollinger (*Syst Verz der Ind, Archipel, etc*, Zurich, 1854) sets aside Hasskarl's name in favour of *Roxburgh's*, he had at least one specimen before him and had seen the plant of Hasskarl living in the Buitenzorg Garden. In the latest Catalogue of that garden (Teysmann and Binnendijk, *Cat Pl II B Bogor*, 1866) *A. Cantala* Roxb. is maintained and *A. Rumphii*, Hasskarl excluded.

In the Garden of Sir Thomas Hanbury at Mentone (*Syst. Cat* by G. Cronmeyer, Esfurt, 1889) *Agave Rumphii*, *A. Cantala*, *A. cespitosa*, and *A. thecometel* are all separately represented. Mr. Watson of the Kew Garden visited the Riviera during 1890 (*Kew Bulletin* No 36, Dec 1889, CXXVI) and his notes on *Agaves* include the following:

"*A. Rumphii* Hassk. — Mr. Baker refers this to '*A. cespitosa*' but the plant under the former name in Mr. Hanbury's Garden looks like a gigantic *A. rigida*, it is a very fine *Agave*, the leaves about 5 feet long and very numerous."

'*A. cespitosa* Linn (*A. Cantala*). A distinct species, more resembling a *Incræta*. This lately flowered at Mentone."

In November 1891 Mr. Baker himself visited the Riviera (*Kew Bull* No 61, January 1892, CXXVIII).

We extract the following as it is material —

"*A. rigida* Miller. This, the most valuable and most variable of all the *Agaves*, is common and quite at home in the Riviera Gardens, flowering freely, and I had an opportunity of studying its characters and range of variation far better than I had ever done before and of seeing several forms with which I was not previously acquainted. The commonest forms in the Riviera show the characteristic small distant nearly black teeth, and agree very well with

Baker says
A Cantala
of Riviera is
form of A
rigida if so
then Cantala
of Riviera is
not Cantala of
India

what has been described and figured as *Ixth* and *ixthoides* (Bot. Mag t 5893) In Dr Hern's garden, situated just on the French side of the Boundary Gorge at St Louis, I saw a form with leaves much thicker than usual ($1\frac{1}{2}$ inches thick at the base) and forming a less dense rosette. The plants called *Cantala* and *Rumphii* in the Riviéra gardens are forms of *rigida*. Mr Hanbury has just flowered a spineless form that agrees very well with the *sisalana* of Yucatan and Florida. I am quite satisfied now that *A. Houlettii*, *Jacobi*, is nothing more than undeveloped *sisalana*, and the same holds good with a plant called *laevis*. One panicle of this species at La Mortola was producing copious bulbils. The peduncle, including the rhomboid panicle, does not reach a greater height than 12—15 feet. The bract leaves, like those of *americana*, are small and distinct as compared with those of *atrovirens*.

COMMENTS
ON A CAN
TULA

If this decision be accepted it is certain that the plants named '*Cantala*,' and '*Rumphii*' at La Mortola cannot be the plants of Roxburgh and Hasskarl respectively. We possess in India specimens received from Kew as '*Agave rigida*' which differ absolutely from any species naturalized in the East Indies, and from *Rumphii*' figure also. The reference to the picture and account of *A. ixthoides* in Bot. Mag 5893 complicates the question, for the plant there depicted,—after every allowance for the effects of artificial nurture,—could not pass as conspecific with the Sisal Hemp of India. That the Indian Sisal is the plant introduced from Yucatan to Florida by Dr. Perrine, is certain, see among other authorities *Kew Bulletin* No 62 of 1892, COXXVII (Sisal Hemp) and *Bulletin* No 5, 1899, Dept of Land Records and Agriculture, Bengal, (*Agave sisalana*).

A. sisalana in India varies as regards its leaves from margins absolutely smooth to fairly thorny, but there is one Sisal Hemp in this country and one only. Leaves with and without prickles may be found on the same individual.

Royle and
Wight had
never seen *A*
Cantala

To return to *A. Cantala*,—Royle had evidently never seen an authentic example of this (1853), nor had Wight, who does not even mention Roxburgh's species. Wight (*Icones* VI pp 18 19) says—(under *Agave vivipara*)

"The *Agave americana* or as it is usually called *American Aloe*, now so common all over the country, belongs to the same genus and, as the name imports, comes from the same country. They are not *Aloes*. Rumphius has introduced a figure of this plant into his

COMMENTS ON A
CANTALA *Herb Amboynensis* apparently on the supposition of its being indigenous in that island"

It is needless to comment on this passage in detail, but it is essential to observe that the plant with which "*Agave americana*" is being compared in the *Agave vivipara* (sic) of Linnaeus, and that it is for introducing a figure of Wight's own *Agave vivipara* that Rumpf is (unjustly as it happens) indited. The passage seems to have been often read as if the plant of which Burmann added (from Rumphius' "Auctuarium") a plate to the original account of "*Semperivivum*," was '*Agave americana*.' Actually it is neither *A. americana* nor '*A. vivipara*' (of Wight) but *A. Cantala* Roxb.

Wight's illustration is not very good, but it cannot fail to be recognized by any one who is conversant with the Indian Agaves and it should be equally impossible to confound either the species itself or Wight's artist's drawing with the plate in Rumphius. There is an unpublished drawing in the Herbarium H B C marked as *A. vivipara*, L in Wallich's handwriting under which is written '*A. Cantala*, Roxb.' The species is unmistakably that of Wight's figure, the more so that both represent plants which have blossomed, when the appearance of the 'rosette' or bunch of leaves (which in "*vivipara*" is highly characteristic) differs conspicuously from the previous condition.

Wallich's query was due probably to the original "*Cantala*" having been lost from the garden, and it must, we think, be answered in the negative.

In the first place, there is a plant which is fairly abundant and self-propagated in some parts of India answering to the figure and description in the *Herb Amb* which Roxburgh after mature consideration cited for his *Agave Cantala*.

In the second place, the Calcutta garden name for Wight's species is "*A. Cantala* var *vivipara*," which suggests that the Roxburghian plant was readily distinguishable.

The plant which we identify with *A. Cantala* is proved by specimens to be plentiful about Bombay, and through the kindness of Mr. I. H. Burkill, FLS, we have seen undoubted examples of this well marked species from the Northern Circars, the scene of Roxburgh's own chief explorations.

Roughly speaking, *A. Cantala* extends from Central India (both E and W Coasts) to the N W Gangetic Plain and

the Sub-Siwalik tract as far as the Ravi. In the arid strip between Gwalior and Delhi it seems to be absent, but another Agave has found its way into this vacant corner.

From a suite of specimens which the Reporter on Economic Products to the Government of India has placed at our disposal, we think that this other Agave is identical with Mr. Gamble's *A. mexicana*.

AGAVE OF
DELHI
Apparently *A.
mexicana*,
Gamble

Dalzell and Gibson (*Bombay Flora*, Bombay, 1861) mention three Agaves (under Bromeliaceae) as follows:—

BOMBAY
AGAVES
Dalzell and
Gibson's
statement

1. *Agave Cantala*. *Aloe americana*, Roxb. Fl. Ind. 2. 167. *A* stately *Aloe*-looking plant, the central scape rising to the height of 15 or 20 feet, flowers in the rains. The broad ensiform leaves give material for rope or twine.

2. *A. vivipara*, is the narrower leaved plant, leaves flexuous and drooping, which may be seen growing in waste places, and is planted in situations where its roots may retain the earth when washed down by the rains. In the Madras Presidency it is employed in this way to keep up the earth near to the parapets of bridges, a practice which might with advantage be followed on our side of India.

3. *Furcraea foetida*, Vent. in Usteri Ann. 19—54.—*A* plant similar in habit to *Agave Cantala*, but having thinner and more flaccid leaves, and green flowers. In gardens, Bombay, rare."

Graham had
said that
Bombay
vivipara is
var of *Canta-
tula*

There can be little doubt that the "*vivipara*" of the Bombay Flora is the form with weak leaves that is common in hedges at Saharanpur.

Graham made it a variety of *A. Cantala* Roxb. Dalzell and Gibson repeat Graham for part of their remarks, but the "broad ensiform leaves" which they assign to *A. Cantala* are puzzling. Moreover, they seem to ignore Wight altogether. Possibly the *A. Cantala* is Wight's *vivipara*.

Dalzell and
Gibson's
Cantala
hardly seems
right *Cantala*,
but right
Cantala is on
Bombay side

It is curious that Mr. Watson speaks of *A. Rumphii*, Hasekari, as "a very fine Agave, the leaves about 5 feet long and very numerous" and as like a gigantic *A. rigida*. We hardly think that Wight's *vivipara* would be described "as a stately Aloe" or as "a very fine Agave", unfortunately we have no specimens or picture of the *A. Rumphii* or *A. Cantala* from La Mortola, but without attempting to decide whether Dalzell and Gibson's *A. Cantala* was the same as Graham's we are convinced that what we regard as the true *Cantala* is the *A. Cantala* of the Hort. Bengal, is a common hedge-plant in the Bombay neighbourhood.

BOMBAY
AGAVES

In the *Keio Bulletin* No 39, March 1890 CXXXI (Bombay Aloe Fibre) the source of this was taken to be *A. vivipara* as described by Baker in the *Gardener's Chronicle* (1c) which he had further identified with Roxburgh's *A. Cantala*.

The Bombay
Aloe Fibre
shipped in
1890 was of
mixed origin

It is impossible that this "Bombay Aloe" could be *Wight's* plant, because it had leaves 4—5 feet long and rather concave, whereas the leaves of *Wight's vivipara* are conspicuously flat on the upper surface, and the largest leaves observed have not exceeded three feet in length,—the average being two feet and a quarter.

Now it is
largely from
A. Cantala

It is clear from the correspondence printed with the *Bulletin* just quoted that the "Bombay Aloe Fibre" then being shipped to England was not grown at Bombay, but obtained (from more than one species most likely) in the Carnatic and Central India. Fibre is now shipped from Bombay that is raised in the immediate neighbourhood, and, so far as our information goes, this is largely taken from *A. Cantala* of Roxb (= *A. vivipara* L. according to Baker as above, not in *Gard Chron.*)

Roxburgh
probably
experimented
with fibre
of *A. Cantala*

Reference to the "Observations" quoted above will show that Roxburgh's experiments gave a high place among the fibres tested to the Agave there mentioned, which we believe to have been the same that he published later as *A. Cantala*.

Further enquiry is very necessary to ascertain whether the weak "flexuous" variety of *Graham* is or is not distinct from *A. Cantala*. Its fibre,—rightly or wrongly,—seems to be generally looked on as worthless.

It may here be noted that in *Drury's Useful Plants of India* (Madras 1858) *Wight's* Leon 202 is quoted for '*Agave americana*' although '*A. vivipara* L.' is given on the next page without comment. Of *A. americana* it is stated:—

"It is much valued as a hedge plant but its chief importance arises from the 'excellent fibres which it yields. Not only are these produced from the leaves' but a 'ligneous fibre is contained in the root scarcely known as the *Pila* thread.' This is much used in the Madras Presidency.

We have not been able to confirm the extraction* of fibre from the root of any Agave, and as the passage goes on to describe the process of making thread from the leaves there is probably a clerical error somewhere.

This "ligneous fibre" reappears in *Babu T. N. Mukerji's Descriptive Catalogue of Indian Produce contributed to the Amsterdam Exhibition 1883* but it is there stated to be got from the "stem" (scape) of '*Agave americana*'.

* Hernandez speaks of ropes being made with the roots themselves, which is a different matter.

We have so far tried to extricate the two species that are most widely spread in India, with the result that for the plant of *Roxburgh* the name given in the *Hortus Bengalensis* remains unaffected (species E of List = *A. Cantala Roxb.*)

SUMMARY
OF REASONS
FOR NAMES
AGAVE
WIGHTII

For *Wight's "vivipara"* we conclude that a new name must be proposed, and have shown this in our List as Species J = "*A. Wightii*" accordingly

A new name
necessary to
distinguish
Wight's vivipara from the
true vivipara

Reasons have at the same time been adduced for holding that the Sisal Hemp (of India) has nothing to do with the plant usually styled *Agave rigida* in gardens

We may now take up the species known in the Calcutta Garden as "*A. lurida*" This is not the "*A. lurida*" of *Jacquín*, nor is it the plant portrayed at No 1522 of *Sims' Bot Magazine* and described as *A. lurida* of the *Hort Kewensis* by *Gawler*. The leaves of that, as well as those of the *A. lurida* of *Baker* (in *Saunders' Refugium T 307*) are on far too small a scale for the Calcutta "*lurida*," while the habit of the latter is quite different, on the other hand, except that the segments of the perianth open campanulately in the figure, the flower in the *Refugium* is similar

CALCUTTA
A. LURIDA
MUST BE
CALLED A
VERA CRUZ

The earlier figure must be given up, we think, and the description, which was made solely from the figure, goes with it

Aiton's description might apply to several *Eragaves*, but he doubtless meant to indicate the *Agave Vera-Cruz* of *Miller*, and the only ground on which *Miller's* name could be set aside would be that it is not classical, but at all events it does not pretend to correct latinity as does "*Vera Crucis*," which is manifestly wrong, or "*Verae Crucis*," which is questionable No caveat can apparently be lodged on the score of priority We therefore venture to restore for this *Agave* *Miller's* name of *Agave Vera-Cruz*, without attempting to pronounce whether *A. atrovirens* of *Karwinskii*, and certain other forms that seem very much akin to it are specifically distinct or otherwise This is D of our Descriptive List = *A. Vera-Cruz Miller*

Closely allied, it would seem, to the preceding is a plant which we have not seen except from the Saharanpur Botanic Garden, where it was received from the continent of Europe

SUMMARY
OF REASONS
FOR NAMES

under the name of *A. Jacquiniiana* (reduced in the Index Kewensis to *A. lurida* of Aiton)*

We shall have to refer to this shortly, but the present point is that the Saharanpur plant under discussion most assuredly is not *A. Jacquiniiana*, Hooker. It is nearest so far as we can judge to the *A. atrovirens* of Karwinski (see Rose in *Contrib. U. S. National Herb.* v 225-225) = *A. Salmana* Otto, which is one of the chief *Pulque* plants of Mexico. Humboldt (quoted by Sir W. Hooker in his note on *A. americana* just mentioned) writes "This sturdy, harsh and fleshy-leaved plant is uninjured by the occasional drought frosts and excessive cold which prevail on the lofty cordilleras of Mexico" and it is possible that the home of the *pseudo-Jacquiniiana* is in that climate, and that it is therefore able to survive the winters of N. W. India, to which *A. Vera Cruz* appears not to be equal in the same degree at all events.

AGAVE
SPECIES C
above is not
to be named
but is nearest
A. Jacquini-
iana

We cannot follow the reduction of *A. Jacquiniiana*, Hooker to *A. lurida*, it by *A. lurida*. *A. Vera Cruz* Miller be intended, and it is hopeless to compare *A. lurida* of Aiton, as the type† has long ago been lost, while the descriptions in the systematic books are mostly fitted to *A. Vera Cruz*, with the misleading addition of a long caudex (as a compromise perhaps with *A. Jacquiniiana* Hooker).

We have referred to this Saharanpur "*Jacquiniiana*," because if *aloe* fibre cultivation should extend it seems not at all an unlikely sort to be tried in the colder parts of India, though it might turn out to be of more interest to the Excise than to the Agricultural Department. At present there is not material enough even for experiment (in Descriptive List C).

AGAVE
SPECIES A

Agave A. of the Descriptive List is in cultivation at Saharanpur, though not as a "*fibre aloe*." In this the marginal spines are small, fine, ruby coloured and close set on a hardly perceptible border of the same tint running all along the leaf

* *A. Jacquiniiana* was originally proposed by Schultes (*Syst. VII. P. I.* p. 727) for the plant of the *Collectanea* (in regard to Gussone's strict reas. in *Bot. Mag.* 15 2) in case *Jacquini* species should turn out to be distinct from all previously described species. In 1859 an *AGAVE* that had come from Honduras flowered at Kew—was identified with *Jacquini lurida*—and published in the *Bot. Mag.* (5097) as *A. Jacquiniiana*; the correct citation therefore is *A. Jacquiniiana* Hooker. This was not impossible—*A. vivipara* of Wight—*A. Wightii* nobis.

† Mr. Baker may be right in identifying the plant he described in the *Refugium* with Aiton's *Jacquini lurida* but the segments of the perianth in Saunders's figure, and the leaves will not do for; *A. Vera Cruz* of Miller.

margin A plant reported to be naturalized in Burma seems to be this, or at least very near to it. Nothing is known of the qualities of either form (if they are distinct), nor can they be properly identified, but they are allied possibly to *Agave Keratto* of Miller

SUMMARY
OF REASONS
FOR NAMES

Agave Spec is
A not to be
named but
nearest A
Keratto.

The Saharanpur specimens are named "*Agave Ixtli*," which is certainly inapplicable. The original *A Ixtli* of Karwinski came from Yucatan, and his description (which is quoted in Kunth's Enum., V p 835) leads us to think that his plant must be near the very marked species which has been described by Mr Baker in the *Kew Bulletin* (Nos 67, 68 July August 1892, COLVII, False Sisal of Florida). There has been great confusion as to *A Ixtli*, as will be perceived on reference to *Bot Mag* 5893, where an *Agave ixtli* of Haworth is mentioned as distinct from that of Koch,* besides *Jacobi*s, which was possibly intended to be the *A Ixtli* of Karwinski.

The name *A Ixtli* is not applicable

In the notice just quoted it is suggested that *A ixtli Jacobi* may belong to the same species with that writer's *A fourcroydes* and *A ixtlioides*, of which 5893 *Bot Mag* is a representation.

In the *Index Kew* are the "*ixtli*" (i) of Koch (ii) of Haworth, and (iii) of *Jacobi* are not separately mentioned, while *A ixtli* of Karwinski is reduced, with "*fourcroydes*," "*ixtlioides*," and *A sisalana*, Perrine to the *A rigida* of Miller.

These identifications rest on the conclusions of Engelmann (*Notes on Agave* reprinted in *Bot Works Cambridge Mass* p 212, 1887). His account is too long for quotation as a whole, but an extract will be given under the next species. He identifies an *Agave* that flowered at Antibes in 1872 with *A Ixtli* (presumably of Karwinski), and this again with a wild *Agave* of Yucatan called by the Indians *Chelem*. Of the '*Chelem*' he says '*wh ch I refer with little doubt to Miller's old A rigida*'.

He gives no grounds for this last identification, while his description has not much in common with Karwinski's of *A Ixtli* and differs in material respects from that of Miller's *A rigida* other difficulties apart, an insuperable bar presents

* From the notice of Koch's Monograph in *Bull Soc Bot de France* vol Rec B 31 189 Karwinski's *A Ixtli* only would appear to have been included and is doubtless that intended.

SUMMARY
OF REASONS
FOR NAMESRemarks on
the name *A.*
Ixthi

itself in the fact that *A. sisalana* Perrine sends up suckers freely and continuously, whereas Miller says of his *A. rigida*,—"This sort never puts out suckers from the root, nor have I seen any plants of this kind in flower, although there are many of them in the English Gardens some of which are of considerable age."

As to *A. Ixthi Karwinskii*, and *A. decipiens* Baker, the peculiar apple green of the rather narrow channelled leaves is a striking mark, as remarked by both authors, whereas Miller's plant was glaucous. Moreover *A. rigida* came from the Vera Cruz country while *A. Ixthi* is, like *sisalana*, from the Yucatan peninsula, which has a Flora, as Grisebach has pointed out, more akin to that of the Caribbean region than to that of Central Mexico. Miller's *A. rigida* resembles *sisalana* in one point it is true,—that it was spineless (though this is by no means always so with *sisalana*) but this very character divides it from *A. Ixthi* which is well armed.

Specimens of what we believe to be Baker's *A. decipiens* are growing at Sibpur and Saharanpur,—also with the Agri-Hort Society at Lahore from which garden the Calcutta specimen is derived, the Lahore name being "*A. rigida*," and the stock received from Kew originally. The Saharanpur supply came from a Nursery in Florida labelled "*A. rigida, type*" referring doubtless to the work of Engelmann. These plants exactly match Miss Muirford's illustration (from a photograph) of *A. decipiens* (Missouri Bot Garden Report, Vol 7, 1896, p 67), and Miss G. E. Johnson's outline drawings (pl 68-69), also the sketch in U S A. Department of Agriculture Report No 9 Washington 1897, p. 45, figure 9, except that the trunk in Mr. Dodge's sketch is more conspicuous,—the subject having manifestly been an old and large specimen from which the outer leaves have been cut or dropped away extensively.

"*A. Ixthi*" of *Gartenflora* 1883 (p 149) may be = *A. ixthodes* of Bot Mag 5893. We cannot think that it is = *A. decipiens* Baker, and it is widely removed from *A. sisalana*, *Perrine*. The synonymy is very intricate.

We have discussed this agave (*A. decipiens* Baker) at some length,—partly because of its supposed resemblance to *A. sisalana*,—a resemblance which we are bound at the same time to say we are unable to discover,—and partly in the hope of

clearing up some of the mist that has fallen upon *A. Ixtli* and on *A. rigida* of Miller.

SUMMARY
OF REASONS
FOR NAMES,

Remarks on
A. Ixtli

There is little to guide us as to the identity of Miller's plant, but there is nothing to shew that it was a *Enagave*,—and it should be looked for perhaps in another section of the Genus. The description (quoted we presume) in Kunth's Enum., V 830 of *A. (Littaea) revoluta*, Klotzsch seems not far off it. Hernandez "*Mell V angustifolia*" = *Nequamell* (which is not the *Nequamell* of Markgraf apparently) should probably find a place in the same neighbourhood.

The last species that demands attention is the *Sisal Agave*, of which, as we have already seen, there is one species and one only in India.

Remarks on
Sisal Agave

Dr Engelmann,—after giving a formal description of the plant which he assumed to be the wild type of the "*Sisal*" that is naturalized in Florida,—proceeded to take up certain cultivated forms as follows —

* * * * *

"Var. *longifolia* folus multo longioribus glaucis, aculeato-dentatis, spina terminali non decurrenti

Engelmann
has these two
varieties of
A. rigida
MILL.

"Var.? *Sisalana* folus multo longioribus viridioribus margine integris seu paucidentatis, spina terminali non decurrenti. *Agave Sisalana*, Perrine, vide infra.

"The original* plant was, according to Miller, brought from Vera-Cruz, my specimens, on which the above diagnosis is based, were collected in Yucatan by Dr Schott. Dr Perrine forty, and Dr Schott ten, years ago studied in Yucatan this interesting plant,—its different forms and economical uses, and left us accounts of it, the former in Senate Doc 300, Washington, Mar 12 1838, the latter in the Report of the Agricultural Department at Washington for 1869. Both agree that there is a common native species in Yucatan, called *Chelem* by the aboriginal inhabitants, but from time immemorial a number of varieties, all characterized by much longer leaves, and one also by the absence of marginal spines, and differing among themselves in the quantity and quality of their

* i.e. *A. rigida* Miller on Engelmann's theory

SUMMARY
OF REASONS
FOR NAMESEngelmann &
v. P. W. G. S. S. S.

fibre, have been cultivated by the natives of Yucatan, and are a staple product of that country to this day, furnishing the well known Sisal hemp. The people know them as Jenequen (Schott) or Henequen (Perrine) and distinguish, as [317 (29)] Dr Schott reports, the Yaxci (Yashki) as furnishing the best quality and the Sacai (Saqun) with the largest quantity of fibre, Chucumen, larger than the last, produces coarser fibre, Baboi has fine fibre but in smaller quantity, Citamen, with small narrow leaves and poor fibre, stands probably nearest to the wild plant. Dr Perrine mentions another variety, Istle, evidently the Ixth of Karwinaki, as furnishing a fine fibre called Pita. These plants yield a return of leaves when four or five years old, and may last 50 or 60 years under proper management, the flowering scape is cut off as soon as four feet high, when, evidently, axillary branches continue the growth of the plant, which is thus kept so long alive by being prevented from flowering

“With the name of *longifolia* I designate the variety known as Sacai and extensively cultivated in [318 (30)] Yucatan. It is principally distinguished by its much longer spiny leaves 4—5½ feet long 3½—4 inches wide, flowers very similar to those of the wild plant but the filaments greenish. *A. fourcroides*, Jacobi Ag 107, probably belongs here, and *A. elongata*, Jacobi, 108. I would refer to this form if the description did not expressly mention a channelled terminal spine

“*Agave Sisalana* is the name that Dr Perrine gave to the plant known to the natives of Yucatan as Yaxci, the most valuable of the fibre producing Agaves, and which was introduced by him into South Florida some thirty-five or forty years ago, during his efforts to acclimatize commercially valuable tropical plants in that almost tropical portion of our territory, efforts which were aided by Congress by a large

grant of land, but which were destroyed, together with his own life, during the subsequent Indian wars. With this Agave, however, he has been successful, as it is now fully naturalized, and is quite abundant at Key West and the adjacent coast."

SUMMARY
OF REASONS
FOR NAMES

• • • • •

The assumption underlying certain of the conclusions just quoted, that the Agaves are prone to vary within rather wide limits has influenced systematists undoubtedly, but no evidence has ever been recorded to confirm it, and so far as species naturalized or cultivated in India are concerned, we should be led to just the opposite conclusion.

Remarks on
Sisal

All that we can draw from the facts given by Engelmann and others is that there are certain Agaves in Yucatan to which local native names have been attached viz, (i) *Yaxci*, (ii) *Sacci*, (iii) *Babci*, (iv) *Olameci*, (v) *Chelem*.

Henequen, as Engelmann points out, is a general term, and so probably are "*Pita*" and "*Itle*", "*Chucumeci*" seems to be the same word as the "*chichumecae*" of Hernandez (l o p 271) which he states expressed the Indian mode of cooking portions of the leaves for food (cf *Martius* l o p 192). Probably this also is a comprehensive term rather than the name of a particular plant.

Martius, who appears to have consulted several works that are not mentioned by Engelmann, states that in the language of the Maya tribes of Yucatan "*Qui*" or "*Quil*" signifies the plant from which fibre is got as well as the fibre, and enumerates as different sorts (i) *Sac qui* (*Sesquil*), (ii) *Yas qui*, (iii) *Ohul qui*, (iv) *Chelem*.

Of these the *Yas qui* or *Yash-qui* is from the description manifestly Engelmann's No (i), and is *A. sisalana*.

It would seem that the *Sacqui* ranks highest in the estimation of the natives, and thus evidently in the plant that is cultivated on a large scale in the district of which Merida (Sisal* is a port of Merida) is the centre, and figured at p 24 of *Kew Bulletin* No 62 Feby 1892 (CCXXVII, Sisal Hemp). In the same Bulletin, (p 31) it is clearly shewn that the Yucatan field Agave is quite distinct from that which *Dr. Perrine*, who

The best form
cultivated in
the district of
Merida

* The husk fibre port now is said to be Progreso.

SUMMARY
OF REASONS
FOR NAMESSacqui is an
Agave of
Sisal type.

was many years at Campechy, selected as the best for the Florida plantation, and that he selected wisely.

Martius supposed the Sacqui might be a *Furcraea*, but the sketch already mentioned and the descriptions suggest an Agave of the Sisalana type, with a stout trunk, however, and generally more the habit of a *Yucca*. The flowers have been seen at Kew, and the plant pronounced to be probably 'var. *elongata*' of (Engelmann's) *A. rigida*. We do not know on what material Engelmann's description of the type of "*rigida*" was founded, but he evidently meant to indicate the "wild" original of the field Sacqui. Pending farther exploration it can hardly be regarded as established that the wild originals of either Sacqui or Yash-quí have been found or exist anywhere.

Both have evidently been in cultivation by the Mayas from a great antiquity, and we propose until more is known of the Agaves of Yucatan to refer to them as,—

Adopted
name for
SisalSacqui = *A. longifolia*, EngelmannYash-quí = * *A. sisalana*, Perrine

From Martius' history it seems possible that a third species has been cultivated in Yucatan and that this was *A. Ixthi* of Karwinski. Mr. Dodge's account of the False Sisal found on and near the coast of Florida makes it not unlikely that this was unintentionally introduced along with "Sisalana" and has meantime been described again (from Florida) as *A. decipiens* of Baker.

Remarks on
A. decipiens

It is condemned by the North American experts, but the qualities assigned to it would not necessarily prevent its being used in its native country; more particularly if it be the fact, that a good deal of local fibre has for many years been shipped from the Gulf of Mexico to be mixed with other staples. Although existing solely in Botanic Gardens in India we include *A. decipiens* Baker, in our descriptive list of Indian Agaves, as it should be known, if only to be avoided for the reasons given by the authorities at Kew and Washington.

The result of the above examination of the authorities and material available in India may be summed up as follows so far as identity of species is concerned.

* Strictly, this should be *A. sisalana*, Perrine (Engelmann), but the above is less cumbersome.

* The following *Euagaves* are more or less completely naturalized in different parts of India, viz ,

REVIEW OF
PRECEDING
SUMMARY

- A. unidentified, perhaps allied to *A. Keratto Miller*—seen from Burma only,—fibre not known ;
- D. *A. Vera Cruz Miller* = *A. lurida* II *B. C.* (not of *Jacquin*, doubtfully of *Aiton*),—fibre not fully known ,
- E. *A. Cantala Roxb*—fibre exported from Bombay with that of other species, often, but wrongly called '*Agave vivipara*' ,
- F. unidentified, approaches *A. sisalana*, *Perrine* and may possibly be *Engelmann's* "*A. rigida, Miller*" or a closely allied form, there is some ground for supposing that this plant is grown as '*A. elongata*' in the West Indies,—received in H B O under the name of "*A. mexicana*" which, as shewn above, is unmaintainable,—fibre wants to be reported on ,
- H. unidentified,—planted in Bengal and in the Ganges "Doabs", naturalized at Saharanpur, and there (wrongly) named "*A. lurida*", probably allied to *A. sisalana*,—fibre wants to be reported on ,
- J *A. Wightii* (nobis) = *A. vivipara*, *Wight* (not of *Linnaeus* or of *Lamarck*),—fibre reported on as good, but shorter than *A. sisalana*

Of the remaining species of *Agave* in the Descriptive List (Part I) *B* (*A. americana*, Linn) and *C* are not naturalized or grown except as ornamental garden plants in India, while *D* = *A. sisalana* is a comparatively recent introduction It is believed, however, to be spreading in some places spontaneously

Only one *Furcraea* has so far shown any tendency to become naturalized in India, which is usually identified with *F. gigantea*, *Vent.* We think this may be rather *F. Commelyni*, *Salm-Dyck*, but information as to it is very scanty

and the
ment F
mens c
spine ;
appare

BIBLIOGRAPHY

BIBLIOGRAPHY ON AGAVES.

It is hoped that the references in the text will be found sufficient as regards the authorities mainly consulted; but the subjoined list of the more interesting or important publications bearing on the subject may be found useful, though it is far from exhaustive, and cannot profess, even from the writers' standpoint, to be complete. This does not include standard works of reference on Vegetable Physiology and Systematic Botany (from *Linnaeus* onwards) unless for some special reason, and the same applies to local floras also.

There are certain works which we have been unable to study, that should have a place in a complete Bibliography of the Agaves, such as—

PETER MARTIR, *de rebus Oceanis et de Orbe Novo*, etc.—Basle 1533

ALDINUS, *Horto Farnesiano*—Rome 1625

RODATI, *Index, etc.*, Bologna 1803

BOISSIER, *Voyage dans le Midi de l'Espagne*—Paris 1839—1845

BORÉAU, *L'Agave americana et descr. de quelques plantes nouv. ou peu connues*.—Angers 1850.

PAYNO, *Mimorie sobre el Maguay mexicano y sus diversos productos*.—Mexico 1864

Of other works, the following are the more important or interesting —

CLUSIUS, *Rariorum aliquot stirpium per Hispaniam observatarum historia*, Antwerp, 1576.

CLUSIUS, *Exoticorum Libri Decem*, Antwerp 1605.

CESALPINIUS, *De Plantis*, Florence 1583.

DALECHAMP, *Historia generalis plantarum*, Lyons 1586

MATTHIOLUS, *De Plantis Epitome*, ed Camerarius, Frankfurt am Main 1586.

MATTHIOLUS, *Kreuterbuch*, ed Camerarius, Frankfurt am Main 1590

GALVANO, *Discoveries of the World published in English by Richard Hakluyt*,* London 1601.

* For other Travels and Accounts of this period see Sir H. Sloane's Catalogue under Aloe

- BODAEUS SCALIGER AND CONSTANTINUS, *Theophrasti Cressi BIBLIOGRAPHY.
de historia plantarum libri decem, etc*, Amsterdam 1644
- HERNANDEZ, *Rerum medicarum Novae Hispaniae Thesaurus*
Ed Anton Recchi, Rome 1651
- MUNTING, *Alouatarium*—Amsterdam 1680
- RAY, *Historia Plantarum*, London (typ. Maria Clark,
1686—1704
- SLOANE, *Catalogus plantarum, etc*, London 1696
- PLUKENET, *Almagestum botanicum, and Phytographia*,
London 1696
- JAN COMMELIN, *Horti Medici Amstelodamensis descriptio*,
etc—Amsterdam 1697—1701
- BOERHAAVE, *Historia plantarum*, "Rome 1727."
- RUMPHIUS, *Herbarium Amboinense, Vol V*, Amsterdam
1745
- AUBLET, *Histoire des plantes de la Guiane, etc*, London and
Paris 1775 (Vol I, A-jac)
- HILL, *Vegetable System*, vol. XXIII, London 1773 (*Aloe*)
- PATRICK BROWNE, *History of Jamaica*, London 1789
- PHILIP MILLER, *Gardener's Dictionary*, viii ed, London
1768
- PHILIP MILLER, *Gardener's Dictionary*, IX ed, (Martyn's),
London 1797—1804
- THORNTON, "A new Illustration of the Sexual System of
Linnæus" with plates in separate volume, London 1799
- BUCHANAN (afterwards HAMILTON) "Journey to Mysore,"
London 1807
- AINSLIE, *Materia Medica of Hindoostan*, Malras 1813
- ROXBURGH, *Flora Indica*, Ed Carey, Calcutta 1832.
- HUMBOLDT, BOYLAND and KUNTH *Novæ Genera et Species
plantarum*, Paris 1815—25.
- HUMBOLDT, *Essai Politique de la Nouvelle Espagne*, Paris
1825
- SCHNEDE, "Botanische Berichte aus Mexico" in "Linnæa"
Vol IV Berlin 1829.
- ZUCCARINI, *Plantarum Notarum* " " in *horto Monacensi*
Fasc 1, Ratisbon 1832

BIBLIOGRAPHY

- ZUCCARINI, "Ueber einige Pflanzen aus den Gattungen *Agave* und *Fourcroya*," in *Nora Acta Phys Med Acad C. Car. Leopold Nat Cur, Breslau and Bonn* 1833
- BERTOLOMI, *Flora Italica*, Vol IV (*Agave*),—*Bologna* 1839
- DE VISIANI, *Flora Dalmatica* (*Agave*),—*Leipzig* 1842—52
- ROYLE, *Illustrations of Himalayan Botany*, London 1839
- MODRE, in *Gardener's Chronicle* No 37 of 1849 (London) on an *Agave* that flowered in the Apothecaries' Garden at Chelsea during 1849
- MARTIUS, *Beitrag zur Natur- und Literatur-Geschichte der Agaveen*,—*Munich* 1855
- MARTIUS, *Flora Brasiliensis* Vol III, Pt I, *Leipzig* c 1855
- ROYLE, *Fibrous Plants of India*, London 1855
- ALPH DE CANDOLLE *Géographie Botanique Raisonnée*, Paris and Geneva 1855
- MARTINS CH "De l'introduction à l'Europe de la naturalisation et de la floraison de l'*Agave americana*"—*Bull Soc Bot de France* II, 1855
- MARTINS CH "Des circonstances qui peuvent déterminer la floraison de l'*Agave americana*"—*Bull Soc Bot de France* VIII, 1861
- ERNST MEYER, "Die Europäische *Agave* und ihre ursprüngliche Heimath"—*Bot Zeitung* 1865, p 384
- SCHLECHTENDAI, "Munting's blühende *Agave*"—*Bot. Zeitung* 1865, p 384
- JACOBI* on *Agavea*, in *Sitz Schles Gesell für Vaterl Cultur* (see *Gartenflora* 1868, p 346)
- JACOBI, "Ueber den Bluthenbau der *Agave*" in *Sitz Schles Gesell* 1869 (see *Bot Zeitung* 1869, p 846)
- BLANQUEZ† P and I, "Memorie sobre el *Maguay Mexicano*" Mexico 1865 (Reviewed in *Bull Bot Soc de France* Bibl 1867)

* In 1864 and 1870 at Hamburg a separate work appeared as "Versuch zu einer systematischen Ordnung der *Agavea*" but the above paper and certain others not seen by us constitute the authority for his species

† These authors are sometimes said to have proposed to alter the name *A. americana* to *A. Maximiliana* but the actual contention seems to have been that the term *Maguay* covers several species one of which they held to be undescribed, and for this they proposed the name *A. Maximiliana*.

- LE GRAND, "Sur la naturalisation dans le Roussillon de l'Agave Americana"—*Bull Bot Soc de France* XVII, 1870 BIBLIOGRAPHY
- ENGELMANN, "Notes on Agave" *Transactions of Academy of Science of St Louis* in 291—322 1875 and in "Botanical Works" (posthumous), Cambridge Mass 1887
- HOFFMANN, "Areal der Agave americana in Europa als Freilandpflanze," *Gartenflora* 1875, p 70 and t 825
- BRAUN, on the growth of Agaveae (*Sitzungsber der Gesellschaft Natur-forschende Freunde zu Berlin*, quoted in *Bot. Zeitung* 1876, p 347)
- JACKSON, "Uses of Agave Americana," in *Pharmaceutical Journal*, 3rd ser, vol V. 461
- BAKER, "The Genus Agave" in *Gardener's Chronicle* N S VII, VIII, 1877 (London).
- BAKER, "The species of Fourcroya" in *Gardener's Chronicle*, N S XI, 1879 (London)
- DE CANDOLLE, *Origin of Cultivated Plants* (Eng Translation, London 1884)
- TERRACIANO, *Primo contributo ad una Monografia delle Agave*, Naples, 1885
- DANTELLI, "Sull' Agave Americana Linn" in *Nuovo Giorn Bot Ital* vol XVII, Fasc II, Florence 1885
- HEMSLEY, *Biologia Central-Americana, Botany, Introduction and Appendix*, London, 1888
- ENGELER and PRANTL, *Naturlichen Pflanzen-Familien (Amaryllidaceae)*, Leipzig 1889
- WATT, *Dictionary of Economic Products of India*, Vol. I A. 602—640 and Vol III F 749

KEW BULLETIN

Article	V	Sisal Hemp	...	1887
"	VI	Mauritius Hemp	..	1887
"	XXIII	Mexican Fibre or Isle	..	1887
"	CKVII	Fibre Industry at the Bahamas	...	1889
"	CKXVI	Cool cultivation of Tropical and Subtropical Plants	..	1882
"	CKXXV	Bombay Aloe Fibre	...	1890

BIBLIOGRAPHY

KEY BULLETIN—contd

Article	CLIII	Fibre Industry at the Bahamas	1890
"	CLXX	Mexican Fibre or Istle	1890
"	CCX	Bahamas Industries	1891
"	CCXXIII	Agaveae and Arborescent Liliaceae on the Riviera	1892
"	CCXXV II	Sisal Hemp	1892
"	CCXLIX	Sisal Hemp in the Bahamas	1892
"	CCLV II	False Sisal of Florida	1892
"	CCLX	Caraguata Fibre	1892
"	CCLXXVIII	Sisal Hemp Industry in Yucatan	1892
"	CCXXX	Bombay Aloe Fibre ...	1892
"	CCX	Mamla Aloe Fibre	1893
"	CCCVXIV	Fibre Investigations in the United States	1893
"	CCLVXVI	Henequen Hemp in Yucatan	1893
"	CCCLXXVII	Folting in Agave Plants	1893
"	CCCLXXIX	Resources of British Honduras	1893
"	CCCLX	Sisal Hemp at the Bahamas	1894
"	CCCLXXVII	Sisal Hemp in the Bahamas	1894
"	DIVIII	Sisal Cultivation in the Turks and Caicos Islands ...	1896

MULFORD, A I, "A study of the Agaves of the United States,"—Missouri Garden Report, Seventh Annual, 1896

DODGE, "Useful Fibre Plants of the World" in Rpt No 9 U. S. Dept of Agriculture,—Washington 1897

ROSE, "Notes on Useful Plants of Mexico" in Contributions from the U. S. National Herbarium, vol v, Washington, 1897—1901

UNDER-SECT FOR AGRICULTURE, QUEENSLAND, "Sisal Hemp in Queensland," Agricultural Journal, Vol I, Pl. 5, Brisbane, 1897

WOHLTMANN, "Der Hansbau in Deutsch-Ost-Afrika" in Tropenpflanzer, 1898

- STUHLMANN, "Notizen ueber die Goleinments Pflanzung **BIBLIOGRAPHY.**
Kurasim" in *Tropenpflanzer*, 1899
- PRAIN, *Bulletin No 5 Dept of Land Records and Agriculture, Bengal*, "Agave Sisalana,"—Calcutta 1899.
- BOEKEN, "Der Sisalhanf" in *Tropenpflanzer*, 1900
- DUNSTAN, *Technical Reports on Fibres*, pp 58 and 96, in *Imperial Institute Reports* 1903
- DEWEY, "Principal Commercial Plant [Fibres]," in *United States Department of Agriculture Year Book* 1903
- MANN (H H) and HUNTER, "Sisal Hemp Culture in the Indian Tea Districts" (*Indian Tea Association's publications No 8 of 1904*), Calcutta 1904
- DIRECTOR, BOTANIC GARDENS, STRAITS SETTLEMENTS, "Fibre Plants," in *Agricultural Bulletin of the Straits and Federated Malay States*, p 405, No 10—Vol III, Singapore, October 1904,
- also
- SQUIER, *Tropical Fibres, &c*, London and New York, 1863
- BROWN R N, *A Handbook of the trees, etc*, in the *Agricultural Society's Garden and neighbourhood of Madras*, with supplement by J J. WOOD, Madras, 1866
- MOERMAN, *The Ramie*,—translated from the French by E D de Dombal, Calcutta (*Bengal Secretariat Press*) 1874
- LIOTARD, *Memoirandam on Materials in India suitable for the manufacture of Paper*, Calcutta (*Home, Revenue and Agricultural Press*) 1880
- SPON'S ENCYCLOPEDIA, *Dist III*, "Fibrous Substances," London 1882
- IMPERIAL INSTITUTE SERIES OF HAND-BOOKS (INDIAN SECTION) No 12, *Fibres used for Brush-making*, Calcutta (*Supdt, Govt Printing, India*) 1893
- GUILFOYLE, *Fibres from Plants indigenous and introduced* . . in *Victoria, Melbourne (Australia)* 1894
- KEW BULLETIN (SELECTED PAPERS) ADDL SER* II *Vegetable Fibres* 1898
- NELSON, *The Agaves*,—(*Reprint from Year book of Dept. of Agriculture, U S A*), Washington? 1902

* This includes in a single volume all the articles quoted separately by us above with others on fibres.

BIBLIOGRAPHY

COTTER, *The cultivation of Sisal in Hawaii*, Honolulu 1903
 EDWARDS, *Manuey in the Philippines* (*Farmer's Bulletin*
 No 10, Philippine Bureau of Agriculture), Manila 1904

Upon economic points several other works have been consulted or might with advantage be referred to, where accessible, e g

ARRUDA DA CAMARA, "*Dissertacao sobre as plantas do Brasil que podem dar linhos &c*" Rio de Janeiro, 1820

BERNARDIN, *Nomenclature Usuelle de 550 Fibres Textiles*, &c, Ghent 1872

ERNST, A.—*Descriptive Catalogues of Venezuelan products*, Philadelphia, Caraccas and Columbian Exhibitions, 1876, 1883 (pub 1886), and 1893

VETILLART *Fibres Végétales Textiles* Paris 1876

SAVORONAN, *Plante Textile*, Alston 1891

WIESNER *Indische Faserpflanzen* (in *Sitzungsbericht K. Akad Wissensch*) Vienna 1870

Also papers in the Journal of the Society of Arts by Mr J F. Watson and Sir Daniel Morris

Recent advances in the method of extracting fibre from the *Agaveae* in their native country are treated in a work by Dr F Martinez Calleja (*Explotacion de los Textiles*, Mexico 1895) quoted in a Bulletin of the *Hawaiian Agricultural Experiment Station* (No 4 already cited) which contains in brief compass much that is interesting, from the planter's point of view particularly

PART III—GLOSSARY.

GLOSSARY

THIS takes in a somewhat wider field than the preceding parts, because current and vernacular names of plants and their products are not regulated or defined on any system. We have aimed at including all names of this class (so far as known to us) that appear to relate directly to the species treated in Parts I and II, but besides these there are sundry names or terms which are apt to be confused with those more properly applied to *Agaveae*, or to products derived from them.

In India there is much confusion with regard to *Aloes* for example, while in America, different products from the

Agaveae and Bromeliaceae—to say nought of Palms and Grasses—have been almost hopelessly mixed up together

INTRO-
DUCTION
TO
GLOSSARY.

In such cases other names have been included, with due explanations

Marks used in dictionaries to denote modes of orthography which do not prevail in English are not followed in the Glossary, because, for one thing, a majority of the names dealt with were spelled,—with diversified success,—by those who used or published them, phonetically

Different renderings of Indian local names have been in most cases entered separately, on grounds of convenience, and, for somewhat similar reasons, certain names attributed to the classical languages of India and West Asia though perhaps no longer current, have been given a place in the Glossary

—“French,” “English,” or “Spanish” names that are chiefly current abroad are referred in doubtful cases to the language understood to be actually predominant in the country concerned

As regards “Botanical references” the authority for scientific names printed in Italics should be sought in the second column, for others the writers of these notes are primarily responsible

The original authority for vernacular names has been cited so far as was possible but where specimens have been inspected we have quoted the source from which the specimen was directly communicated as our authority for the local designation—thus for certain Indian names we quote the Reporter on Economic Products to the Government of India or the Government Botanist Madras, because though the name may have been previously recorded, it is from specimens collected by Sir George Watt by Mr Barber, or by Mr Burkill that we have been able to identify the plant said to bear a particular name in a particular locality with some approach to certainty

For the sets of specimens received from Madras we are greatly indebted to the co operation of the Government Botanist and the Revenue authorities

It is hoped that the Glossary may help to clear the way both for those who may be called on to pronounce on the identity and character of Indian Aloe fibres and for all who are interested in them agriculturally or commercially Those who have made a study of any like subject will be able to

INTRODUCTION
TO
GLOSSARY

appreciate the intricacy of confusion that begets the local and vernacular terminology, as well as the loss and inconvenience due to it

The chief difficulty is to keep the list within manageable bounds. In his catalogue of Fibre Plants of the World, from which we have derived much help, Mr Dodge has observed (under '*Grass fibres*')—

"while fibrous substance is extracted from many species of *Gramineae* the family of true grasses, the term is frequently applied to fibres derived from plants that are grasses in no sense of the word, and it is therefore misleading. Examples: 'Ch a grass' the fibre from a tall shrub (*Boehmeria*) 'Sisal grass' the fibre from a fleshy leaved *Agave* and 'Silk grass' which may mean *Brassica* fibre, or almost anything."

We must plead guilty to having omitted 'Sisal grass' and would gladly have passed over a good many more that figure in our list, as it is but it seemed better for the present to err rather on the side of inclusion.

We have not attempted to expound any purely botanical terms. Those employed in the text of Part I should not be found very difficult, and in any case, where a reader not versed in the botany of the *Agaveae* may want a decision, his best course would be to send an inner and an outer leaf, with some flowers in spirit (if the plant is pining), also a few pods if available to a competent botanist for identification.

The column in the Glossary of references to Parts I and II of the Bulletin is meant to assist in finding matter bearing on the botanical history of the plant or plants to which the commercial or vernacular name is believed to refer. For economic or industrial details the Dictionary of Economic Products for India, or in case of other countries works such as Spon's Encyclopædia, should be consulted. Where only the author's name appears in the second column fuller references will be found under Bibliography (Part II, p 72 and foll) or on the pages quoted in the sixth column.

*Glossary of local and commercial terms referring to the
Agaveae (also certain other fibre plants) or to their
products.*

NAME	Authority	Language	Where used	Scientific determination
ABACA	Spon, also Kew Bull XXXI	Filipino	Philippine Islands	<i>Musa textilis</i> , Noe
ABECEDAIRE	Daniells	French	France	<i>Agave americana</i>
ABACAXI	Martius	Tupi Indian	Brazil	<i>Ananassa sativa</i> Linn
ACENAR	Rumpf	Spanish	Spanish Colonies do	<i>Aloe vera</i> , Linn
ACURRE	De Lecluse	Portuguese	Portugal	Ditto
ACIBAR	Ditto	Spanish	Spain	Ditto
ADAM'S NEEDLE (1).	Spon, also Watt E D	English	Cosmopolitan	<i>Yucca gloriosa</i> , Linn
ADAM'S NEEDLE (2)	..	Ditto	Ditto	<i>Agave</i> sp
ADAM'S NEEDLE (3)	Gulifoye	Ditto	Australia	<i>Yucca filamentosa</i>
AFRICAN HEART	...	Ditto		<i>Sansevieria</i> sp
AGAVE PAJO	H B K *	Spanish	Central and South America (Mexico and Venezuela)	<i>Tillandsia recurvata</i> Willd ?

* Humboldt, Bonpland and Kunth

NAME	Authority	Language	Where used	Scientific determination
AGAVE THREAD		English	Europe and America	Agave and Furcraea sp
AGUA DE MIEL	Miss Gdn Rept 1896	Spanish	Central America (Mexico)	Agave atrovirens, harwinii (and other species?)
AGUA MIEL	Martius	Do	Ditto	Agave americana
AQUARDIENTE	"	Do	Spain and Spanish Colonies	.
Ditto	Ross	Do	Central America (Mexico)	Saccharum officinarum Linn
AQUARDIENTE DE MAGUAY	Miss Gdn Rept. 1896	Do	Ditto	Agave americana
ALLAGUAY	Fragoso (in C Bauhin. also Sloane)	(Not known)	C America (? Grenada)	Agaveae sp
ALOE (1)	.	English, French, German	Cosmopolitan	Aloe sp
ALOE (2)	C Masson (Journeys I, IC4)	English	India	Nannorrhops Ritchiana, H Wendl

Page.	REMARKS
...	Applied to fibre or prepared yarn obtained from different species of <i>Agaveae</i> .
97, 98, 100, 139, 140	The sap that exudes into the basin (<i>cajeta</i>) formed by cutting out the vegetative cone or 'bud' of certain <i>Agaves</i> when about to 'pole', to obtain the ' <i>Pulque</i> ' or native cider of Mexico. Literally 'mead', 'honey water', or 'hydromel.' Some authorities state that a spirit (<i>Aguardiente</i> , see below) is got from this liquor by a further process, also vinegar.
Do.	The true <i>Agave americana</i> of Linnaeus, our (B), does not seem to be one of the ' <i>Pulque</i> ' kinds, but in any case what Martins had in view was a different species
98	'Fire-water,' or Brandy.
Do.	Rose states that the spirit sold at the present day in Mexico as ' <i>Aguardiente</i> ' is distilled from 'Cane,' presumably from molasses (but see the next, also ' <i>Chingurito</i> ')
88, 95	See ' <i>Agua de Miel</i> ,' ' <i>Chingurito</i> ,' and the preceding
97	(By a misprint in Daniell's <i>Allagney</i>) Fragoso identifies his <i>Allagney</i> with the <i>Filix Agulla</i> of S Spain which is our (D) = <i>A. Vera Cruz</i> , Mill. Probably corrupted from the Spanish ' <i>El Maguey</i> ,' Cf ' <i>Amagney</i> .'
113	<p>The one in question is not found in South Africa and the adjacent islands, but at least one species is found in S. Europe and an allied form on the coasts of India; while another form (<i>Aloe indica</i> of Royle) occurs at the base of the N.-W. Himalaya. The leaves of certain species of <i>Agave</i> resemble those of the true <i>Aloe</i>, so that when the <i>Agaveae</i> of the new World came under notice they were classed with the <i>Aloes</i>, and this reference, though recognised scientifically as an error since the time of Linnaeus, has persisted in the popular vocabulary of different countries to the present. Economically the true <i>Aloes</i> are chiefly important as the source of a drug, while the <i>Agaveae</i> ('American <i>Aloe</i>,' etc.) are best known as yielding fibre.</p> <p>is no doubt the same.</p>

NAME	Authority	Language	Where used	Scientific determination
ALOE AMERICANA	Danieli	Italian	Italy	<i>Agave americana</i>
ALOE BOREICA	Ditto	Ditto	Do	Ditto
ALOE FISKE (1)	Dodge	English	India	<i>Aloe indica</i>
ALOE FISKE (2)	Balfour (Ceylon patria)	Ditto	S India	<i>Agave americana</i> , <i>A. vivipara</i> <i>Furcraea</i> <i>gigantea</i> Yucca <i>gloriosa</i>
ALOE FISKE (3)	Imp Inst Hand book (Ind Sect) No 12	Ditto	Do	<i>Agave americana</i>
ALOE FIORENTINA	Bertoloni	Italian	Italy	Ditto
ALOES (1)		English, French, German	Cosmopolitan	<i>Aloe</i> , species
ALOES (2)	Boyer Hort Maur. p 353	French	Mauritius	<i>Agave americana</i> Lion (Sprengel)
ALOES A FEUILLES FRUILLÉS	Ditto	Do	Ditto	<i>Agave angustifolia</i> , Haw
ALOES D' AMERI- QUE	Danieli	Do	France	<i>Agave americana</i>

Page	REMARKS
	<p>is most commonly spontaneous on the Mediterranean coasts in our (D) <i>A. Vera Cruz</i>, Mill, and in S Europe this is often called '<i>A. mexicana</i>' or '<i>A. americana</i>'. In Britain it has usually been called since Aiton's time '<i>A. lurida</i>,' but is sometimes ticketed '<i>A. americana</i>.'</p>
No.	<p>Possibly the true <i>Agave americana</i> of Linnaeus, as distinguished from the '<i>A. americana</i>' of S Europe, which is commonly = D (<i>A. Vera Cruz</i>, Mill)</p> <p>Fibre from India was shown at the Chicago Exhibition of 1893 under</p> <p>is found</p> <p>are usually</p> <p>this plant</p>
90	<p>By <i>A. americana</i> is intended probably <i>A. Castala</i>, Roxb (E), and <i>A. Vera Cruz</i>, Mill (D), by <i>A. crispata</i> (J) of these notes, i.e., <i>A. Wrightii</i>, or perhaps (E) also. Yucca fibre has undoubtedly been handled in Madras, but the species is not, so far, ascertained properly.</p>
90	<p>In 1893 Mr. Thompson reported that 'Aloe fibre' was used in his brush factory in the Nilgiris, Genl M'Leod also reported that the fibre of the 'American aloe' had been used for brushmaking, and apparently brush fibre from <i>Agaveae</i> was readily obtainable in certain bazars. The plant intended by Genl M'Leod seems to have been the 'Railway Aloe' which is usually our (D), i.e., <i>A. Vera Cruz</i>, Mill. (see also Mexican fibre)</p>
111, 120	<p>Probably = (D) which is <i>Agave Vera Cruz</i>, Mill</p>
107	<p>The drug produced from <i>Aloe vera</i>, Linn.; <i>Aloe Perryi</i>, Baker, and other species of true <i>Aloe</i>.</p>
90	<p>Bojer cites Andrews' Repository, but the plant which he saw naturalized was probably distinct from that which he says was grown in gardens</p>
88	<p>Cf. <i>Ananas de pite</i></p>
118-120	<p>'American Aloe'. See <i>Aloe americana</i> above.</p>

NAME	Authority	Language	Where used	Scientific determination
ALORS PITH	Aublet	French	S America (French Guiana)	<i>Agave americana</i>
ALORS PITTA	Daniella	Ditto	S France (Provence and Rousillon)	<i>Agave Vera Cruz, Mill (probably)</i>
ALORS PITTE	L'isleur Deslong champs (Flor Gall. Ed L P I p 259)	Ditto	France	<i>Agave americana</i>
ALORS VART		Ditto	Mauritius	<i>Furcraea</i> sp.
ALOS	Violani	Sclavonic	S. Europe (E Adriatic littoral)	<i>Agave americana</i>
AMAGURT	Edwards	Philippine	Philippines (Pangasinan and Zambales)	<i>Agave</i> sp
AMERICAN ALOS (1)	Smith (Dict Ec Plants)	English	Cosmopolitan	<i>Agave americana</i>

NAME	Authority	Language	Where used	Scientific determination
AMERICAN ALOE (2)	Balfour (Cyclo pedia)	English	India	<i>Agave americana</i>
AMERIKANISCHE ALOE		German	Germany	<i>Agave americana</i>
AMERICAN ALOE FIBRE		English	India	...
AMOIN	Dodge (also M. s Mulford, Coulter Rose &c)	Spanish	C America	Agaves, S. p
ANAI KATHALAI	Govern- ment Botanist Madras	Tamil	S India (Tinne- vely)	Agave Vera Cruz, Mill
ANAI KATHA- GHAI	Mukerji Deccr Col- Ind Prod Amsterdam etc 1883	Do	Ditto	Ditto
ANAI KATHA- KHAL	Watt E D	Do.	Ditto	Ditto
ANAI KATTALAI	Govern- ment Botanist Madras	Do	S India (S Arcot)	Ditto

Page	REMARKS
99	The true <i>Agave americana</i> is not common in India, except as an ornamental plant in gardens &c, while the term is popularly applied to more than one species of <i>Agave</i> (as well as <i>Furcraea</i>)
84, 86	In Northern Europe the title is usually applied to the true <i>Agave americana</i> of Linne, while the <i>Agave americana</i> (or American aloe) of E Furoy is, for the most part, <i>A Vera Cruz</i> , Mill. (our D), which does not thrive as a rule out of doors in N Europe
105	Used to indicate the fibres locally obtained by different processes <div style="text-align: center;"> <p>2 - 3 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p> </div>
97	Several <i>Agaveae</i> possess detergent qualities. In the West Indies certain kinds of <i>Eugaveae</i> (<i>A. Morrisii</i> , Baker and <i>A. Keratto</i> , Mill possibly also <i>Furcraea</i>) are or were generally used for scouring floors &c, and from one or more of these a soap has been manufactured which can be used with salt water. The fine toilet soap made in Illinois is from a <i>Yucca</i> , but several <i>Agaves</i> of the <i>Manfreda</i> and <i>Littara</i> groups yield scouring material in the United States and N W Mexico these are known locally as "amole". The rootstock of the amole plants is said to be the part used. It is the leaf of the <i>Eugaveae</i> in the West Indies 'Amolilla' (Dodge) is a <i>Prochnyanthes</i> and not known in India
83, 85, 86, 90, 103, 126, 181, 189, 147	(D) of this bulletin. See <i>Anas Kathalai</i> , etc
...	Variously spelled 'Anak' or 'Anak,' and the second part with a 'g' or a 'z'. Meaning not known to us. Cf <i>Anas Kathalai</i> and <i>Kadanaku</i> .
Do	See the preceding
Do	(D) of this bulletin. See <i>Anas Kathalai</i> , etc

NAME	Authority	Language	Where used	Scientific determination
ANAI KATTALEY	Balfour (Cyclo- pedia)	Tamil	S. India	<i>Agave americana</i>
ANAI KUTTALAI	Brown and Wood	Do.	S. India (Madras)	<i>Agave americana</i> Linn.
ANAK KATTALAI	Govern- ment Botanist Madras	Do.	S. India (S. Arcot)	<i>Agave Vera</i> Cruz Mill.
ANAK KATTALI	Ditto	Do.	Ditto (Oombatore)	Ditto
ANAKYITHA	Ditto	Malayalam	S. India (Malabar)	Ditto
ANANA DE PITE	Boutou (in Sloane)	French	Mascarene Islands	<i>Aloe Fuccas</i> folia.
ANANAS	Watt & D	American native language not specified	Cosmopolitan	<i>Ananas sativa</i> , Linn.
ANANAS BOYA	Rumpf	Malay	Ambouys, &c	<i>Agave Cantala</i> Rorb.
ANANAS BRAVO	Acosta	Portu- guese	S W India	<i>Pandanus</i> sp.
ANANAS COSTA	Martius	Ditto	Java	<i>Agave Rumphii</i>
ANANAS MANSO	Do.	Ditto	Portugal, Brazil &c	<i>Ananas sativa</i> , Linn.
ANANAS UTAN	Rumpf	Malay	Ambouys, &c	<i>Agave Cantala</i> Rorb.
ARBOL DE LAS MARAVILLAS	Acosta	Spanish	Spain, &c.	<i>Agave</i> sp.
ARBOL DE MAGNEY	Do.	Ditto	Ditto	Ditto

Page	REMARKS
84, 85, 86, 99, 106, 126, 131, 139, 147	The proper spelling, we believe is 'Ans kattale,' <i>Kattale</i> is and in be
95	Evidently the same as the <i>Anai Kattale</i> of Balfour
83, 85, 86, 99, 106, 126, 131, 139, 147	Variants, no doubt of 'Ans' (or 'Anai') <i>Kattale</i> , which appears to be applied very uniformly in the Madras Presidency to Agave (D)
86, 147	Agave (D) The first element may be—'Ans,' and the second—Kia (Pandanus)
117	Perhaps a <i>Furcraea</i> , but the 'Anans' suggests rather a Bromeliad. See also <i>Pitheche</i> , and <i>Laffe</i> . The <i>Bouton</i> quoted by Sloane was, of an older generation obviously than the Editor of the Reports of the Natural History Soc. of the Mauritius
0	various <i>Nanas</i> whose fibre plants particularly
88, 183 &c	See <i>Nanas Boaya</i>
.	See <i>Kyre & Melke Cour.</i>
89, 133, 110	Martius thinks that this Agave, which has been identified with our (E) = <i>A Cantala</i> , Roxb was so named because brought to Java from the Indian Coast
...	= Cultivated pine apple.
88, 133 &c	See <i>Nanas utan</i> and the preceding. The Portuguese in India likened the screwpine (<i>Pandanus</i>) to the American pine apple, which they introduced to India and Malaga and the Malays have transferred the name either from the pine apple or the screwpine to certain <i>Agaveae</i> (see <i>Nanas utan</i> , &c)
110	See <i>Maguey</i> .
110	Ditto

NAME	Authority	Language	Where used	Scientific determination
ANNA	Linschotten (in Bauhin)	Guzerati ?	Western India (Guzerat)	<i>Aloe</i> sp ?
ANNA	Garcia del Huerto Aromatum etc ed Clausius Antwerp 1867	Ditto	W and Central India (Guzerat and Deccan)	<i>Aloe Agave</i> or <i>Pandanus</i> sp
AZUL		Portuguese	Portugal &c	<i>Aloe</i> ^a sp
AZUL CHAM PARUA	Ruiz and Pavon	Spanish	Peru &c	<i>Agave americana</i>
BAHAMAS HEMP	Lew Sel Papers (Addl Ser II) LII	English	England and America	<i>Agave rigida</i> var
BAKKUL	Balfour (Cyclope- dia)	Bengali	India (Bengal)	<i>Agave americana</i>
BALU BAKKISA	Ditto	Telegu	■ India	<i>Agave americana</i>
BAYADA BAT TALA	Latard	Telegu	S Ind : (Mysore)	<i>Agave variegata</i>
BANSEKORA (1)	O Shaugh- nessy (Bengal Dispensa- tory, Calcutta 1819)	Hindustani	N Ind a	<i>Agave vivipara</i>
BANSEKORA (2)	Watt E D	Hindustani	N Ind a	<i>Agave americana</i>

Page	REMARKS
113	This may have been a Persian name, but seems to be used in the Malay Archipelago for a species of <i>Pandanus</i> . It is given here as it may still be in use locally. Unidentified fibres with a similar name have been exhibited in S. India.
113	
8	
141,	
90	Balfour meant perhaps the Bengal Presidency. No such name seems to be known for <i>Agave</i> in Lower Bengal; but it is a local term in parts of Central India for the fibrous bark of the roots of certain trees used' [in Malwa] * * * 'as a cheap substitute for string and cord,' (Dr Tranter in Liotard, p. 65) and about 1852 ' <i>Agave Centala</i> ' which is said to be common in Malwa was used as a substitute for the true ' <i>Bakkul</i> '. The traditional ' <i>Bakul</i> ' is birch bark from the Himalaya while <i>Bacula</i> of the 'Asiatic Researches' was an epithet of several trees or herbs with fragrant flowers e.g. <i>Mimusops Elengi</i> , (Bengal ' <i>Bokul</i> ').
105	Cf <i>Bakus</i> &c
..	Probably <i>Agave americana</i> , Linn var <i>variegata</i> , from which fibre has been obtained experimentally. The compilers say the staple was shorter than that of ' <i>Agave americana</i> ' fibre by which they doubtless meant (D).
91, 102	from ' <i>Bans</i> '—bamboo and ' <i>Keora</i> '—screw-pine: commonly applied
105, 121	from Behar to the E. Punjab to <i>Agave</i> (J)— <i>A. Wrightii</i> of this
123, 127	Bulletin. At Saharanpur (E) and (H) are distinguished as <i>Ram-</i>
131, 133	<i>banskeora</i>
137, 147	
90	<i>Banskeora</i> seems pretty well restricted to (J)— <i>Agave Wrightii</i> .

NAME	Authority	Language	Where used	Scientific determination
BARA KANUR	Watt E D	Bengali	India (Bengal)	<i>Cynum asiaticum</i> , Linn var <i>forficaria</i> Herb
BARA KATWAS	Ditto	Hindustani	S W India	<i>Agave americana</i>
BARRA DE PALO	Dodge	Spanish	Central America (Venezuela) &c	<i>Tillandsia usneoides</i> , Linn
BARBADORS ALOE	Voult (Hort. Bob Cale) etc	English	Cosmopolitan	<i>Aloe</i> sp.
BAS KITBI	Liottard	Hindustani	N W India (Rohilkhand)	<i>Agave</i> sp ?
BASTARD ALOE	Brown and Wood (also Balfour)	English	S India	<i>Agave Wrightii</i> (of this Bulletin)
BASTARD TEQUILA	Rose	..	Central America (Mexico)	<i>Agave</i> Sp
BEAR GRASS	Dodge (and others)	English	Northern and Central America, also in Australia	<i>Yucca</i> Sp

NAME	Authority	Language	Where used	Scientific determination
BHOOTHA PHARANGI	Govt Botanist Madras	Canarese	India (S Canara)	<i>Agave Cantala</i> , Roxb
BHUTTALA	Watt E D	Canarese	S India	<i>Agave americana</i>
BILATTA ANANAS	Roxburgh	Hindustani	India	<i>Agave Cantala</i> , Roxb (Fl Ind) [<i>A Cantala</i> Hort. Beng]
BILATTA NAWAS	Martius	Hindustani	India	<i>Agave Cantala</i> , Roxb.
BILATI ANANAS	Voigt	Bengali	India (Calcutta)	<i>Fourcroya Cantala</i> , Haw [<i>Agave Cantala</i> , Roxb]
BILATI PAT	Watt E D	Do.	Ditto	<i>Agave americana</i>
BINDER TWINE		English	N. America, etc	<i>Agave</i> spp
BITTER ALOE	"	Do	England, &c.	<i>Aloe</i> spp
BOIS CHANDELLA	Aubllet	French	Mauritius	<i>Agave fatida</i> , Linn.
BOIS DE MECHER	Martius	Do.	Antilles	<i>Fourcroya</i> cu- sensu
BOIS RICHE	Aubllet	Do.	Mauritius	<i>Agave fatida</i> , Linn

Page	REMARKS
89, 133, &c.	'Bhurt' in different Indian dialects signifies a 'thorn' or 'burr' and 'faringi' = of course = 'frankish' or 'foreign'
105 &c	Perhaps this is (J), = our <i>Agave Wrightii</i>
87, 100 105, 129, 133, 135 to 139, 147	'Foreign pine apple' = (E) of this Bulletin See also <i>Adam's Needle</i> (2), <i>Aloe fibre</i> (2), <i>Ananas boyas</i> <i>Ananas costa</i> <i>Bombay aloe fibre</i> , &c Roxburgh says that <i>Bilates ananas</i> is the 'Hindoo' name, (i.e. in the lingua franca of 'Hindustan') see <i>Bilati</i> , <i>Ananas</i> (Voigt) also
Do	Martius appears to be quoting a paper, which we have not seen, by Blume
Do.	A Serampore Garden name perhaps, and Roxburgh may have got it from Carey
96	Meaning 'foreign fibre,'—Cf <i>San ka Ner</i>
90	Twine made from vegetable fibre used for tying sheaves at harvesting One of the chief uses of the <i>Agave</i> fibre commercially is or was recently to supply the demand for Bunder twine in the U S A.
127	The pharmaceutical substance obtained from different species of true <i>Aloe</i> .
94, 95, 97	From the 'chandelier' inflorescence a <i>Furcras</i> . See the next.
94 95, 97	Martius, referring to Labat's 'Voyage aux Isles' notes that the <i>Bois de Meche</i> (i.e., 'Tinder or Match tree') yielded fibre, and that the pith of the stem (flowering scape) was used for tinder and for corking phials etc <i>Agave</i> and <i>Furcras</i> were perhaps best known to the early voyagers owing in the dry 'poles' furnishing a handy substitute for tinder to mariners The name crossed from the Islands to Guiana, and travelled thence to the Mauritius See <i>Bois Meche</i> , and <i>Tol</i> , <i>Mauritius Hemp</i> , <i>Piel</i> and <i>Pite</i> also
94, 95, 97	<i>Agave fatida</i> of Linnaeus is <i>Furcras gigantea</i> Vent.; but Aublet goes on to quote a synonym from Plukenet which is <i>F. tuberosa</i> Ait Both were probably known in Guiana (whence the <i>Pite</i> came to the Isle de France), but the species now grown in the Mauritius is perhaps still a third; see <i>Mauritius Hemp</i> etc

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
BOMBAY ALOE	Dodge	English	England &c.	<i>Agave vivipara</i>
BOMBAY ALOE VIBRA	Kew Bot Papers (Addl Ser II) LX & LXI	Do	England	<i>Agave vivipara</i> Linn
BOMBAY HEMP	D	Do	Do	<i>Ditto</i>
BOMTHA KITRAWARA	Govt Bota nist Madras	Telugu	S India (Godavari)	<i>Agave</i> V Cruz, Mill.
BOWSTRING GREENER	Dodge	English	India	<i>Marsdenia tena</i> <i>cusima</i> , W. and A
BOWSTRING HEMP (1)	Roxburgh	Do	Do	<i>Sansseriera Zey-</i> <i>lanica</i> , Willd
BOWSTRING HEMP (2)	Madras Exhib tion Cat. 1855	Do.	S. India (Masulipatam)	<i>Agave</i> -sp. ?
BOWSTRING HEMP (3)	Martius	Do	India	<i>Sansseriera lanu</i> <i>ginosa</i> , Willd.

Page	REMARKS
133	The reference is to ' <i>Bombay Aloe Fibre</i> ' (which see), but the name has been given in India to several distinct species, including our (E). <i>A. sisipara</i> of Wright, =our (J) or <i>Agave Wrightii</i> , is sometimes called 'the Bombay Aloe,' but yields comparatively little perhaps of the ' <i>Bombay Aloe fibre</i> .'
133	When the export of ' <i>Aloe fibre</i> ' from India recently attracted notice in England, the chief port of export was Bombay, and the staple seems to have been Specimens of a plant sent for determinatio largely grown near Bombay city is mainly from our <i>Agave</i> (E), i.e., <i>A. Cantala</i> , Roxb (naturalized) and <i>A. sisipara</i> , Perrine (planted). See the preceding. Usually applied, however, to <i>Crotalaria</i> and <i>Hibiscus</i> fibre
86, 147	(D) of this Bulletin. Cf. <i>Kithanara</i> , etc., also <i>Kalsabutha</i> .
...	See <i>Bowstring Hemp</i> (1) and (2).
77	Roxburgh's experiments on Indian fibres led him to give the The vernacular equivalent ' <i>Saganara</i> ' (which see, also <i>Saganara Matha</i>) is applied in the South to an <i>Agave</i> fibre; on the other hand
77	T

NAME	Authority	Language	Where used	Scientific determination
BRAMARAKASHIE	Madras Exh Cat 1857	Tamil	■ India	<i>Agave sp</i>
BRAMHA RAKASI	Balfour (Cyclo pedia)	Do	Ditto	<i>Agave americana</i>
BROMELIA FITA	Squier (also Dodge)	Spanish	Mexico	<i>Bromelia sylvestris</i>
BROOMROOT	New Sel Papers Add Ser II Arts. LXXIX, LXXX (also Dodge)	English	Cosmopolitan	<i>Epicampes macroura Bth.</i>
BRUSH FIBRE (1)	Madras Exh Cat, 1855	English	S India	<i>Agave Cantala</i>
BRUSH FIBRE (2)	..	Do.	England and America

NAME	Authority	Language	Where used	Scientific determination
PUDDU KATTAL NARU	Vatth E D	Canarese	S India	<i>Agave americana</i>
BULBIL	Baker and others	English	..	.
BUTT	..	Do	...	<i>Agave</i> spp
CANUSA	Martius, also Dodge	Spanish	Antilles	<i>Furcraea gigantea</i>
CABULLA (1)	Dodge	Do	Central America (Costa Rica)	<i>Furcraea tuberosa</i>
CABULLA (2)	Squier	Do	Central America (Yucatan)	<i>Agave sisalana</i>
CANEYA	Seemann (Voyage of the Herald, Botany, p. 218)	Do	Central America (Panama)	<i>Fourcroya 'tule-roca</i> Ait.
CAJETE	Martius	Do	Central America (Mexico)	<i>Agave americana</i>
CAJEN	Dodge	Do	Central America	<i>Furcraea cubensis</i>

NAME	Authority	Language	Where used	Scientific determination
CANTALA (1)	Asiatic Researches VI, 230	Sanscrit	N. India	<i>Agave?</i>
CANTALA (2)	Amsho	Sanscrit	N. India	<i>Agave vivipara</i>
CANTON HEMP	Martius	English	India, &c	<i>Musa troglodytarum tenatoria</i>
CARAGATE	Moerman	French	Belgium.	..
CARAGUATA (1)	Kew Bull Sci Papers Addl Ser II Art. XXXVIII	Spanish	S America (Paraguay)	<i>Bromelia argentina, Baker</i>
CARAGUATA (2)	Martius	Do	Antilles	<i>Fouquieria cubensis</i>

Page	REMARKS
130	and <i>Kuntala</i> , also <i>Kantal</i> , &c
130	<i>Kathal</i>
	From the botanical identification this should be = <i>Musa textilis</i> , but <i>Agaveae</i> also are reported to have been cultivated on the Chinese Coast, as a supplement, most probably to the true Manila fibre
97	'Or Spanish Barb—another species of vegetable hair' <i>Tillandreas</i> yielding 'Cris vegetal' are no doubt intended See <i>Agave palo</i> ,— and <i>Barba de palo</i> A common Spanish American name is 'Barba de Vello' where 'Barba' = 'rootlets'—'fibre' Cf the following
93	' <i>Caraguata</i> ,' which is variously rendered as <i>Caroata</i> <i>Cravata</i> , present, to include any economic species The Paraguay <i>Caraguata</i> was exhibited at Paris in 1889, and was ascertained at Kew to be derived from a then undescribed <i>Bromelia</i> There are at least two kinds of southern <i>Caraguata</i> , viz — <i>Caraguata de agua</i> , and <i>Caraguata ibera</i> , one of which remains to be identified. See <i>Ibera</i> , also <i>Istle</i> , Mexican fibre, <i>Silk grass</i> , <i>Curratow</i> and <i>Keratto</i>
34, 90	It is not clear whether Martius regarded <i>Caraguata</i> as the Carib name of <i>F. cubensis</i> (or <i>F. cubensis</i> and <i>F. tuberosa</i>) as distinguished from <i>F. gigantea</i> (' <i>puta</i> '), but the home of the <i>Furcras</i> was more likely on the mainland, near the Isthmus, though they may have spread to Cuba first and thence back to the mainland from the eastern <i>Antilles</i>

NAME	Authority	Language	Where used	Scientific determination
CARAGUATA (I)	Piso De Ied Utr Re Nat etc Amst. 1659	Spanish	S America (Brazil, etc)	Bromelia Pin- guin, Linn
Ditto (II)	Do	Do	Ditto	Furcraea tube- rosa, Ait
Ditto (III)	Do	Do	Ditto	Aloe, Sp
Ditto (IV)	Do	Do	Ditto	Bromeliaceae?
Ditto (V)	Do	Do.	Ditto	Karatas, Sp.
CARAGUATA ACANGA	Do	Do.	Ditto	Bromelia Pin- guin, Linn
CARAGUATA GUACU	Do. (Also Marc graf ace to Martius)	Do	Ditto	Furcraea tube- rosa, Ait
CARATA	Martius	Carib	West Indian Islands	Agaveae and Bromeliaceae
CARITAS	Labat (in Martius)	French	Antilles	Furcraea cubensis
CARUA	Dodge	Brazilian (Lingoa geral)	Brazil	Bromelia Sp.
CARDON	Gouara	Spanish	Central America	Agave Spp

Page	EXPLAN
98, 108, 117	See <i>Caraguata acanga</i>
98, 117	See <i>Caraguata guata</i> .
98, 108	Usually identified with <i>Aloe vera</i> L., however that may be, it is not a <i>Furcraca</i> or <i>Euagave</i>
98, 108, 117	Perhaps a <i>Bullbergia</i> or allied <i>Bromeliaceae</i> , but at all events neither a <i>Euagave</i> nor a <i>Furcraca</i>
98, 108, 117	Ma-
98, 108, 118	Rightly identified by Sloane with the common Penguin of the West Indian Islands. There has been hopeless confusion with regard to these <i>Bromeliaceae</i> , with the result that this <i>caraguata</i> has been credited with fibre: it produces a fruit eaten in the Islands and in parts of S. America but the fibre is reported to be worthless. The <i>Bromelia acanga</i> of Linnaeus (according to the Index Kewensis) was partly <i>Bromelia Penguin</i> of the Sp. Pl. and partly <i>Karatas Plumieri</i> , E. Morren. See <i>Caroata</i>
98, 117, 118	See <i>Coballe</i> (1). This <i>Furcraca</i> is not naturalized or used so far in India, we have not recognized it even in gardens. As a fibre producer it is believed to have some advantages over the other <i>Furcracas</i> (See <i>Mauritius Hemp</i>). The name is probably the <i>Caroata assu</i> of the Tupi dialects in Spanish dress.
97, 98, 108	Martius identifies the plant of Marcgraf with <i>F. cadensis</i> , but see <i>Caroata assu</i> . He considers that this was the original Carib name for sundry <i>Agaveae</i> and <i>Bromeliaceae</i> and that Carib war canoes
97, 98, 108, 126	Cf. <i>Bou de Méche</i> . Possibly two names are involved, one referring to a <i>Furcraca</i> , the other to a <i>Bromeliad</i> .
98, 108	See <i>Caroa</i>
110	Meaning 'Thistle' or 'Artichoke' and referring to the prickly nature of certain <i>Euagaves</i> ; applied to plants of the <i>Cactus</i> kind also.

NAME	Authority	Language	Where used	Scientific determination
CAROA	Martius	Tupi Indian	Brazil	<i>Billbergia carvata</i> , Schult.
CAROATA	Martius	Tupi Indian	Brazil	<i>Bromelia karatas</i>
CAROATA ASSU	Do	Do	Do	<i>Fourcroya gigantea</i> and <i>F. cubensis</i>
CAROW	Purchar (in Sloane)	Brazilian?	Brazil?	<i>Aloe Tuccas folius</i>
CATECOMER	Garcia	Malayalam	South and West ern India	<i>Aloe</i> Sp
CATEVALA	Bheede Hort. Malab XI t 3	Do	S India	Do
CAUTHAULAT	Madras Exh Cat 1855	Canarese	S India (Mysore)	<i>Aloe</i> Sp
CENAR	Garcia	Arabic	Turkey Persia, etc	<i>Aloe</i> Spp
CHRU HEMP	Dodge	English	Philippines	<i>Musa textilis</i>
CENTURY PLANT	Squier (and others)	Do	North America (U S A)	<i>Agave americana</i>
CHAPARAY	Martius	Chayma Indian	S America (Orinoco Delta)	<i>Agave americana</i>
CHAUGA NANA	Madras Exh Cat, 1857	Telegu	S India (Rajah mundry)	<i>Sansevera Zeylanica</i>

Page	REMARKS
98	<i>Cf. Caraguata</i> (1) also <i>Caraguata</i> IV (of Piso) The plant of the younger Schultes is identified with <i>B. speciosa</i> of Thunberg
98, 108	<i>Bromelia Karatas</i> (see Index Kewensis) is <i>Karatas Plumieri</i> , E Morren, a pineapple like plant of the Caribean region, reported to yield strong but soft fibre See, however, the preceding, <i>Ibera</i> , <i>Little Mexican fibre</i> , <i>Silk grass</i> , etc., also <i>Caraguata</i> (1), and <i>Carow</i>
94, 95, 98, 108 117	This appears to be the <i>Caraguata guacu</i> of Marcgraf (see above), but Piso's plant is evidently neither of the <i>Eurercas</i> named but <i>Fiberosa</i> Ait Confusion may have arisen over DeLaet's <i>Negua mell</i> ; Martius identifies the Tobago plant as <i>P. cubensis</i> , and no doubt correctly but Marcgraf's <i>Caraguata guacu</i> was Brazilian.
98, 116	Sloane has included two sets of names in his list of <i>Agaveae</i> . <i>Fucca folius</i> , one series <i>Bromeliaceae</i> , another to <i>Eurercas</i> The "Carow" same as <i>Carow</i> and referable to <i>Billbergia</i> or <i>Karatas</i>
113	Spelled <i>Catecomer</i> by Linschotten and Bauhin The first part is perhaps the same as that of the <i>Kadanaku</i> or <i>Catecala</i> of Rheede and may represent a 'Persian' form (Kadi or Kazi) given to local names derived from Kania (thorn) —for the second part cf. <i>Kunwar</i> etc
113	From 'Kantewala' (i.e., thorny)? See also <i>Kadanaku</i>
113	Doubtless a rendering of <i>Kattale</i> . See <i>Country aloes</i>
113	<i>Cf. Asaber</i> , and <i>Azul</i> , also <i>Saber</i> , etc
...	From <i>Cebu</i> , one of the Philippine group of Islands.
99, 111	Given as the garden kind of <i>Agave</i> from a tradition started by Borel that the species first introduced into Europe flowered when the life of the plant attained a hundred years, and not earlier
96	Martius compares this with <i>Azul Champaca</i> (q.v.) <i>Chapara</i> in Spanish means a kind of Oak, but the true oaks (in Panama at least) seem to be called <i>Cerro</i>
77	<i>Cf. Sagenara</i> , and <i>Sauga</i>

NAME	Authority	Language	Where used	Scientific determination
CHILEM	Perrine also Schott (in Engelmann)	Maya Indian	Central America (Yucatan)	Agave Sp
CHINA GRASS (1)	Rosburgh	English	East India	<i>Sansevieria Zeylanica</i>
CHINA GRASS (2)	Walt F D	Ditto	Cosmopolitan	<i>Baccharis nirea</i> Hook and Arn
CHINGUITITO	Jackson	Spanish	Central America (Mexico)	<i>Agave americana</i>
CHINI KALA KANDA	Ainslie Nat Med n 160	Telegu	S India	<i>Aloe littoralis</i> Koenig
CHOM	Dodge	Maya Indian	Central America (Yucatan)	<i>Bromelia Pin-</i> <i>guin</i>
CHOTA KANWAR KA PATTA	Ditto	Hindustani	Central Ind (Deccan)	<i>Aloe littoralis</i> Koenig
CHOTCA	Ditto	Spanish	Antilles	<i>Agave vivipara</i>
CHUCUMCI	Engelmann	Maya Indian	Central America (Yucatan)	<i>Agave vivipara</i> Mill.
CHUCAU	DeLaet (in Sloane)	Peruvian	S America (Peru)	<i>Aloe secunda</i> &c.

Page	REMARKS
145	<p>but it is just possible that Perrine referred to the <i>Eragave</i> known as <i>A. decipiens</i>, Baker (K of this Bulletin) When the text was written we were not aware that Dr Perrine had introduced several distinct kinds of <i>Eragave</i> from Yucatan into Florida.</p>
77	<p>Roxburgh conjectured that the China grass of his time, used for fishing lines, &c was obtained from this plant As Sir George Watt has already pointed out, we do not really know what the modern</p> <p>The <i>Rhso</i>, <i>Ramis</i>, <i>Ortis blanche</i>, &c</p>
90 &c	<p>Brandy made from the sugarcane (molasses presumably) as distinguished from <i>Agave</i> spirit, <i>Aguardiente de maguay</i>, which see, also <i>Aguardiente</i></p>
118	<p>In Malayalam <i>Chenna Nayakam</i> Cf <i>Kadanaku</i> also <i>Jennu kottala</i></p>
145	<p>Cf <i>Chusmea</i></p>
113	<p>From the earlier accounts of Western India both the <i>Aloe</i> and <i>Agave</i> seem to have been called 'Kauwar,' i.e., 'thorny,' the <i>Aloe</i> being the lesser, the <i>Agave</i> the greater <i>Kauwar</i> respectively</p>
101 107	<p>some Spanish or Carib name t so far identified with <i>Agave</i> ipara but it is perhaps the p 10) as figured by Orleto</p>
53 to 140	<p>Not identified, reported by Schott as yielding a coarse fibre Cf <i>Chom</i></p> <p>Identified by De Laet with 'the Maquey of the Mexicans':—the <i>Aloe secunda</i> of bloom is <i>A. americana</i> of Linnaeus</p>

Page	REMARKS
98, 117, 145, 146	It is not clear what Martins supposed his <i>chalsique</i> to be, he refers the fibre of Yucatan to several species such as <i>Furcraea cubensis</i> , <i>F. tuberosa</i> , <i>Agave Jacquimiana</i> , <i>A. lurida</i> , <i>A. litle</i> . At present the only species known to yield <i>Sisal Hemp</i> are <i>A. sisalana</i> Perrine and <i>A. longifolia</i> Engelmann
110	See <i>Magway de Cocuy</i>
110	Ditto, and <i>Cf Cocuyse</i>
.	The central cone of leaves in certain <i>Agaves</i> —in the species that yield 'Tampico fibre, the 'cogollo' is removed from the living plant to be treated for fibre
	A Mexican beverage made from certain species of <i>Agave</i>
110, 117	Meaning not traced. <i>Cf Cocuyse</i>
117, 124	See the next also <i>Great American Aloe</i>
117, 124	Browne supposed his plant to be the same as the <i>A. americana</i> of writers on Mexico but Martins referred it to <i>Fourcroya cubensis</i> , which the description will not suit, we think He lays stress on its detergent properties See <i>Keratto</i> , also <i>Caraguata</i> (1)
9	The 'heart' or central cone of the Pulque yielding <i>Eugaves</i> at polling time which is removed to make the cavity for sap collection (<i>Cajete</i>)
90	This item is one in a list headed <i>Agave</i> sp. which however also includes ' <i>Aloe perfoliata</i> roylei,' &c. Under Part I we have not mentioned the true aloe as a source of fibre because evidence of its present use is wanting Cf the next, and <i>Country aloe</i> (2)
90	As the same local list (for Mysore) contains <i>Long Aloe</i> (<i>A. variegata</i>) and <i>Short Aloe</i> (<i>A. americana</i>), and 'cauthaulay' is given as the equivalent the ' <i>Country aloe</i> ' fibre should have been from a true aloe, but <i>Kattali</i> is now the name at Bangalore of an <i>Agave</i>
90	('Or <i>Cathala nar</i> ') If this was the same fibre as the <i>Country aloe</i> of 1855 it may have been from an <i>Aloe</i> ; Royle supposed that it was from an <i>Agave</i> and the experiments have been quoted for <i>Agave americana</i> by subsequent writers. There seems no doubt that cordage has been made in S. India with fibre from the true <i>Aloe</i> but not recently at least on a commercial scale

Glossary of local and commercial terms referring to the

NAME	Auth. city	Language	Where used	Scientific determination
CORTIC MYS	Herman tex	Artec	Central America (Mexico)	Agave Sp ?
CHAYATA	Martius	Brazilian	S America (Brazil)	Agaveas and Bromeliaceae, Sp
CHAYATA DE REDE	Do	Do	Do	Bromelia sac ?
CROWIA	Maria	Indian dialect	S America (British Guiana)	Ananas sativa, Linn
CUBA HEMP	Gulf yk	English	Australia	Furcraea gigantea
CUMARI	Rheede	Arabian language	S India	Aloe Sp.
CURACA	Patrick Browne (also Sloane)	Spanish	Jamaica	Agave Sp
CURBATOW	Spon	Brazilian	S. America (Brazil)	Bromelia Saginaria
CUTHALA NAR	Mad Fih Cat, 1857	Canarese	S India (Mysore)	"
CUTTALAY	Royle	Tamil	S India	Agave Sp
CUTTHALAY NAR	Do	Canarese		Do
DAgger PLANT	Dr Bidie (1877)	English	S India	Yucca gloriosa
ELEPHANT AGAVE	Government Botanist Madras	Do.	S India (Tinnevely)	Agave Vera Cruz Mill.

Page	REMARKS
100	Martius suggests <i>Agave americana</i> but the description hardly fits any <i>Agave</i> . Perhaps a <i>Manfreda</i> . Also given as <i>Macosio Metl</i> and <i>Metl Coztl</i> .
98	See <i>Caraguata</i> (1)
98	Meaning 'Net' or 'Hammock' <i>Caroata</i> . See also <i>Curratow</i> and <i>Cf Reda aones</i> of Ind. s.
98 154	Im Thurn ascribed the <i>Krowa</i> or <i>Crowa</i> fibre to a <i>Bromelia</i> but the plant at Kew has been identified by Sir Daniel Morris as the pine apple. The word is presumably the same as <i>Caroa</i> . Also spelled <i>Krowa</i> . Cf <i>Ceroa</i> .
91 95	More than one species of <i>Furcraea</i> seems to have been tried in Australia and one kind at least is grown on a considerable scale in Queensland. From the name this should be the <i>Furcraea cubensis</i> of Ventenat, but we do not know what the species of <i>Furcraea</i> really are that are grown or used in any of the countries interested.
113	A Sanscrit epithet (referring to the goddess <i>Durga</i>) applied to the true <i>Aloe</i> . See also <i>Catrata</i> .
124	= <i>Coratto</i> . See also <i>Keratto</i> .
III	The scientific name appears to be taken from <i>Arruda da Camara</i> whose plant is said by Martius to be called <i>Cracata de Rede</i> (<i>Ananas bracteatus</i> of the younger Schultes). Also called <i>Grawatha</i> according to Spon. Cf also <i>Caraguata</i> (1).
96	The plants were that supplied the fibre. See <i>Country Aloes</i> (1) and (2) <i>Pooty Mungem</i> &c.
96	See <i>Kattala</i> , which is properly = true <i>Aloe</i> . Cf <i>Kattala</i> . <i>Aor</i> = 'fibre' in several of the S. Indian languages apparently. Cf <i>Cuthala Nar</i> and <i>Kattala</i> .
78	Also called 'Spanish Dagger' 'Spanish Bayonet' etc. in different countries.
83 86 147	(D) of Bulletin. Probably a translation of ' <i>Anas Kattala</i> '.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
FREQUET	Purchar (in Sloane)	Carib	America	<i>Agave or Fur- craea Sp.</i>
LYNDA KALA SANTHA	Govern- ment Botanist Madras	Telegu	S India (Guntur)	<i>Agave Vera Cruz, Mill</i>
LYNDA KALA BOYDA	Ditto	Do	S India (Kistna, Nellore)	Ditto
LYNDA KALA BUNDA	Ditto	Do	S India (Kistna, Nellore, Kur- nool)	Ditto
LEIKATALI	Watt & D	Canarese?	S. India (Bellary)	<i>Agave cecropia</i>
PEPADICLO	Bolt in Kew & I Papers (Add Ser II) LXIV	Spanish	Central America	<i>Agave, Spp ?</i>
FALSE MISAL	Kew Sci Papers (Add Ser II) LIX	English	N. America (Florida and Bahamas)	<i>Agave decipi- ens, Baker</i>
FATAL LACE	Dodge	Do.	N America, etc	<i>Agave americana</i>
FILO DE PITA	Liotard	Portuguese	Portugal	<i>Agave americana</i>
FILY AGUERA	De Lecluse	Spanish	Spain (Valencia)	<i>Agave americana</i>

Page	REMARKS
97, 117	See <i>Henequen</i> and <i>Sisal Hemp</i> .
83, 86, 147	(D) of Bulletin <i>Cf Yanga Kalabanda, etc</i>
83, 86, 147	Ditto Ditto Ditto.
83, 86, 147	Ditto Ditto Ditto
131	Probably Agave (J) is our <i>A. Wyhin</i>
93	Mr Booth notes that the Brush fibre exported through Matamoras may be from the <i>Palma loca</i> (See <i>Palma</i>) or from various forms of the <i>Espadillo</i> . We do not know to what plants <i>Espadillo</i> is applied, but it is perhaps a version of the Mexican ' <i>Isile</i> ' [see <i>Isile</i> (8) and <i>American fibre</i> (1)] and applied in part to one or more <i>Eragaves</i>
77, 82, 83, 92, 106, 141 to 143, 148	This is probably one of the Yucatan <i>Eragaves</i> of which local (Maya) names are given by <i>Perrine</i> , <i>Schott</i> and <i>Martius</i> , and may be their ' <i>Chelem</i> ' or ' <i>Wild Henequen</i> '. It may further be the <i>Agave latifolia</i> of <i>Karwinsk</i> and the <i>A. rigida</i> (wrongly so named) of <i>Engelmann</i> (not of <i>Miller</i>). It has run wild in Florida, and was imported by mistake as <i>Sisal</i> to the Bahamas. Known only in Botanic Gardens in India. It is not in good repute as a fibre yielder, but it can readily be distinguished.
96, &c.	A valuable kind of lace, formerly prepared in Fayal (Azores group) with thread prepared from the fibre of an <i>Agavea</i> , perhaps <i>A. americana</i> , Linn or <i>A. Fera Cruz</i> , Miller. The comparative abundance of one or more Agaves in the Atlantic Islands (including St. Helena) is remarkable, but their introduction is due probably to human agency, though the bulbs are believed to survive immersion in sea water.
96	This term is said to stand in Spanish also for the fibre of ' <i>Agave americana</i> '
111, 114 126	See <i>Aloe americana</i> . The plant of which De Loeuse took an effect from Valencia to Antwerp was very likely our D= <i>Agave Fera Cruz</i> , Mill., but that which the Dutch introduced to N. Europe (from the West Indies, or by way of the Far East) is " <i>Agave americana</i> " and, earlier, of " <i>Agave americana</i> ". Cf " <i>Agave americana</i> " (above); the fibre-yielding " <i>Agave americana</i> " adds the Dutch " <i>Agave americana</i> " probably a like signification.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
FIGER	Dodge	English	S America (Ecuador)	<i>Furcraea gigantea</i>
GHAIKAT	Liotard	Hindustani (Deccani)	S W India (Ahmednagar)	<i>Tacca gloriosa</i>
GHAYMARI	Do	Ditto	S W India (Ratnagiri)	<i>Agave vivipara</i>
GHEE KOOMAR	Roeburgh	Bengali	N India (Bengal)	<i>Aloe</i> spp.
GHI KUNVAR	* Tharman ecogay hua Ind	Hindustani	S W India	<i>Aloe vera</i> , Linn
GHIRWAR	Stewart Panjab Plants p 232	Punjabi	India (Panjab)	<i>Aloe perfoliata</i>
GHRITA KUMARI	Asiatic Researches, XI —156	Sanscrit	N India	<i>Aloe</i> spp
GIANT FIBRE LILY	Goilkeye	English	Australia	<i>Furcraea gigantea</i>
GRASS HEMP	Ditto	Ditto	Ditto	<i>Agave rigida</i>
GRASS MILK	Hakloyle's Voyages (in Sloane)	Ditto	America (probably New Grenada)	<i>Aloe Innece folia</i>
GRATTY GRATTESCH	{ Kew Bot papers (Add. Ser. II) LXVI }	{ French }	Mauritius	"

Page	REMARKS
94, 95	Dr Ernst identified this with the <i>Coccyza</i> of Cumana, and both with ' <i>Eurcraca gigantea</i> '
77	Cf (for the vern name) <i>Bilata pat</i> and the following
181	Probably Agave (J); but the local name looks like a corruption of the following
118	See ' <i>Ghrita Kumari</i> '
118	Tr.
118	Also called <i>Kwar Gandal</i> , 'gandal' being 'bulb,' and 'kwar' = 'kanvar'
118	This appears (see <i>Pharmacographia Indica</i> p 468, for origin and other forms) to be based on an older name of some plant, indigenous or anciently established, in Western and North Western India e.g., <i>Aloe indica</i> of Royle. If the true <i>Aloe</i> has been introduced on the coasts of India, it evidently had arrived before the <i>Agaveae</i>
94 95	This reads like a book name, but is quoted as actually in use by more than one authority. It is not current in India. See <i>Mauritius Hemp</i> also
146	Dr Guilfoyle evidently meant <i>A. sisalana</i> , Perrine, = (G) of this Bulletin
116	Under this Latin name Sloane has quoted several different plants, on (? <i>Sansevieria</i>) See <i>Silk Grass</i> , &c.
...	A machine for scutching the fibre of the Mauritius Hemp (<i>Eurcraca</i> spp.)

NAME	Authority	Language	Where used	Scientific determination
GRAYATA	Marlin	* Lingua Gera ^l (Hraz I)	E. America	<i>Bromelia Karatas</i>
GRAWATRA	Spem	Do.	Ditto	<i>Bromelia Eage maria</i>
GREAT ALOE	Hallout (Cyclo ^o d a)	English	E. India	<i>Fourcroya gigan tea, Vent</i>
GREAT AMERICAN ALOES (1)	Cle ⁿ born (Forests and Gard ets of S India)	Do	Ditto	<i>Agave americana</i>
GREAT AMERICAN ALOES (2)	I . . (Marts a)	Do.	Jau a es	<i>Fourcroya culen du Haworth</i>
GREEN ALOE	I . . ard	Do	E. I d a (Myore)	<i>Agave vicipara</i>
GRIF ALOE	* I F P	English	India	<i>Agave Vera Crus M II</i>
GRANARA	Dut ^o e	Tupi Indian	S. America (Brazil)	<i>Karatas Pismi eri</i>
GUAFILA	I . . oss	Mexican	Central America (N Mexico)	<i>A. falcata, Engelmann</i>
GUL SHABO	I . . L. P	Persian	N India (Patan hot Panjab)	<i>A. Cantala Roxb</i>
HAMFE	.	French	France and French Colonies	..
HANE A CAKE	Marlin	English	America	<i>Agave and Furcraea spp.</i>

* Reporter on Economic Products to the Government of India.

Page	REMARKS
93, 98	See <i>Caragana</i> (1), <i>Carota</i> , &c
93	See <i>Carratow</i>
96	See the next.
96, 124	W. have days plant may but Cleghorn's use is that of most English horticulturists
97, 98, 108, 117 124, 121	For other 'English names,' see the preceding and the next, viz: <i>Country Aloe</i> , <i>Grey Aloe</i> , <i>Hedge Aloe</i> , <i>Hall Aloe</i> , <i>Long Aloe</i> , <i>Short Aloe</i> , <i>Wild Aloe</i> , <i>Seaside Aloe</i> , etc
121	No doubt a <i>Furcraea</i> (see <i>Sims Kattale</i>). The Madras Exhibition Catalogue for 1855 includes fibre from Cuddajah ascribed to ' <i>Agave viridis</i> '. There is no such species known to botanists and the fibre probably was from one of the <i>Furcraeas</i> . The leaves of the Indian <i>Furcraeas</i> are usually of a lighter shade and brighter green than those of the <i>Exagates</i> , and the name recalls the <i>Aloes Vert</i> of the Mauritius—a term not in use in Europe apparently, where ' <i>Green Aloes</i> ' since the days of Rauwolf's travels (Book II, p. 315) has referred to a true <i>Aloe</i> .
83, etc	Referring to the 'grey' or 'blue' (glaucous) tint that is usually conspicuous in (D) of this Bulletin
93, 98	Cf. <i>Isle</i> . Dr Ernst identifies the (Venezuelan?) product with this name as ' <i>Bromelia Pinguin</i> '. <i>Guama</i> , again, is from a totally different order of plants (<i>Lonchocarpus</i> Nat. Ord. <i>Leguminosae</i>)
...	Mr. Rose regards Engelmann's ' <i>falcata</i> ' as perhaps identical with <i>A. striata</i> , Baker, which is Mr. Booth's ' <i>Palma loca</i> '. See <i>Mexican fibre</i> , etc atoralized needle (?) like those Burkill. the Tube-
79	The 'pole' or scape, i.e., flowering stem,—of <i>Agaveae</i>
97	According to Martius a corruption of Henequen. We have not encountered it.

NAME	Authority	Language	Where used	Scientific determination
HATHI CHINGAR	Mukerji also Watt E.D	Hindustani	N India (Oudh)	<i>Agave vivipara</i>
HATHI SESGAR	Watt E.D	Ditto	India	<i>Agave americana</i>
HATTI HEMT	Bernardin (in Hedge)	English	N America?	<i>Forcraea gyan- tes</i>
HEDGE ALOX (1)	Madras Esq. Cat 1857	Do	S W India (P'cons)	<i>Agave</i> Sp.?
HEDGE ALOX (2)	Cameron (Bangalore Cat)	Do	S India (Mysore)	<i>Aloe barbadensis</i> , Mill.
HEVECHEN	De Laet (in Sloane)		Antilles	<i>Aloe</i> <i>Yucca</i> <i>folia</i>
HEVEQUEZ (1)	Oviedo (in Sloane)		Do	Ditto
HEVEQUEZ (2)	Martius	Haitian	Antilles (San Domingo)	<i>Agave</i> spp.

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
HATHI CHINGAR	Mukerji, also Watt E D Watt F D	Hindustani	N. India (Oudh)	<i>Agave ciliata</i>
HATHI SEWGAH		Ditto	India	<i>Agave americana</i>
HATHI HEMT	Bernardin (in Dodge)	English	N. America?	<i>Persea gigan- tea</i>
HEDGE ALOE (1)	Madras Exb Cat 1857	Do	S W India (Poon)	<i>Agave</i> Sp ?
HEDGE ALOE (2)	Cameron (Bangalore Cat)	Do	S India (Mysore)	<i>Aloe barbadensis</i> , Mill.
HEWCHEN	De Laet (in Sloane)		Antilles	<i>Aloe foliata</i> , Tucce
HEWCHEN (1)	Oviedo (in Sloane)		Do	Ditto
HEWCHEN (2)	Martius	Haitian	Antilles (San Domingo)	<i>Agave</i> spp.

Page	REMARKS
83, 144, 145	In 1834 Dr Perrine, U S Consul at Campeachy, submitted a report to his Government on the fibres of the Yucatan Peninsula, in which he described the 'Henequen' as fibre made in Yucatan from different kinds of <i>Agaveae</i> , of which he selected the 'Yashqui hennequin' as the best for cultivation in his own country. In 1838 he introduced different species from the Peninsula of Yucatan to that of Florida, where his life was sacrificed during an incursion of the Indian tribes from the interior. Since his time 'Henequen,' or, as it is now usually spelled, 'Henequen' has become a fibre of first rate importance in several countries, and Perrine's selected species has been introduced successfully into Bengal and Mysore in India. It is said that other staples have been largely mixed at the ports of the Gulf of Mexico with that got from the <i>Eugagres</i> , but the term 'Henequen' is still properly applicable to the best qualities of Yucatan <i>Eugagres</i> fibre (See also <i>Sisal Hemp</i>). It must be remembered at the same time that the sort mostly grown in that Peninsula is not Perrine's 'Swalona' though closely resembling it. For outside countries Perrine's is believed to be superior to it.
78	This is no doubt quite correct as regards some local usage. Under <i>Aloe Yuccae folius</i> Sloane quotes Hermann and other authors who had intended either <i>Yucca</i> or of the small <i>Agaves</i> that have 'thready' leaf-margins, none of which have yet been tried on a market scale in India.
146	This seems to be well known and appreciated in parts of Australia.
109	Oriedo's actual spelling. See Henequen (2) for details.
146	So spelled, apparently, in Perrine's original report which we have not seen, nor his articles in <i>Silliman's Journal</i> . We have followed Engelmann as regards the spelling in this case. Cf. Henequen (3), etc.
51	Balls or young plants developed on the parent branches in the place of seeds by a process of prolific germination in <i>Eugagres</i> and <i>Forcrata</i> .
91, 131	We include these and other terms, though the books are somewhat out of date, because they are not unlikely to recur locally in the course of business.
109	See <i>Cortic Mell</i> . (We have not been able to give more than a few of the names in Hernandez).
...	Cultivated near Bolanos in the state of Jalisco for fibre. Species not determined. Identified with the <i>Bastard Tequila</i> (which see also <i>Tequila</i>).

NAME	Authority	Language	Where used	Scientific determination
IBERA	Kew Bot Papers (Add Ser II) XXXVIII	Brazilian	S. America (Pa raguay etc)	<i>Bromelia</i> sp
IMBIRA BRANCA	Martius	Tupi and other na tive In dian lan guages	S. America (Bra zil etc)	<i>Ficus</i> sp
ISTALE	Squire	Spanish	Central America (Mexico)	<i>Bromelia sylvestris</i>
ISTALE (1)	Do	Do	.	Ditto
ISTALE (2)	Temple in Journ Soc. of Aris, Vol V p 125	Mexican	Central America (British Hon duras)	Ditto

Page	REMARKS
93, 98	See <i>Caraguata</i> (1) and the following
	<p>From the works of Humboldt and Martius it appears that several different kinds of fibre known in S. America under variations of the word <i>Embira</i>, (e.g., <i>Macembira</i>) are <i>Funifera</i> (Nat. Ord. <i>Apocyn</i>) (N. O. <i>Tiliac</i>) <i>Embira</i> fibres are apt those of the <i>Agaveae</i>.</p>
93, 98	A patch of <i>Itile</i> cultivation, or <i>Pinuella</i> farm, so called in the country bordering on the Gulf of Campeachy (see the next and <i>Itile</i>)
98	
98	T
	<p>there be only one species in the tract mentioned), we have no immediate knowledge, but Sir D. Morris' matured opinion points to the <i>Karatas Plumieri</i> of Morren—<i>Nidularium Karatas</i> of Lemaire (see the preceding, <i>Caraguata</i> (1) and connected references) This plant is identical, as we suppose, with a Bromeliad which is established in the Subpur Garden and seems very much at home in its surroundings but this is not known to have been raised on a commercial scale as yet in India. It is staple would probably have taken better hold in the U. M. A. and in</p>
	<p>appears a small specimen one of small size principles of fibre-yielding Bromeliad.</p>

NAME	Authority	Language	Where used	Scientific determination
IXTEL	Dodge	Mexican	Central or S America	
IXTELL	.		Ditto	<i>Agave</i> sp
IXTEL (1)	Squier	Mexican	N America (Athens of Nicaragua, etc)	<i>Bromelia sylvestris</i>
IXTEL (2)	Spon	Ditto	C America (Mexico)	<i>Agave Karwinskii</i>
IXTEL (3)	Rose	Ditto	Ditto	<i>Agave</i> sp
IXTEL MASCAL	Dodge	Ditto	Ditto	<i>Agave Wulfsbergii</i>
IXTEL (1)	..	Ditto	Central America (State of Vera Cruz)	<i>Karwinskii</i> Plummeri, Morr?
IXTEL (2)	Martinez	Maya Indian?	Central America (Yucatan)	<i>Agave Ixtle, Karwinskii</i>

Page	REMARKS
	<i>= Ixtle?</i>
83, 84 101, 140, 141, 147	Evidently <i>Ixtle</i> : applied to an <i>Agave</i> said to be naturalized in Burma, if that be the same with one cultivated at Saharanpur in N W India— <i>Agave</i> (A) of our list which again = very like a form cultivated at Kew from the Turks or Caicos group of islands (in the Bahamas) When Parts I and II were written we were not aware that Perrine had introduced more than the one <i>Agave</i> <i>decipiens</i> (the false Sisal), is very near to it, and may be the 'wild' kind of Engelmann Perrine may, we think have imported (among others possibly)—(i) <i>A. cuscutana</i> —(ii) <i>Agave</i> (A) and (iii) <i>A. decipiens</i> Baker—(K), and if there is or was an <i>Eragrostis</i> known as <i>Ixtle</i> in the Maya country, our A and not Karwinski's plant perhaps represents it. How it has become naturalized in Burma remains to be discovered
93 98	Possibly in part the same as Temple's <i>Ixtle</i> , i.e., <i>Ixtle</i> (2) Major Barnard (U.S.A.) reported on it from the Isthmus of Tehuantepec (Gulf of Campeachy) but diverse products were perhaps included under the one name, at least one being probably an <i>Agave</i>
93	See <i>Ixtle</i> (1), <i>How</i> -- <i>the</i> -- <i>contributor</i> and Nicaragua, Sinaloa, Coa
93	The species of <i>Agave</i> which yield ' <i>Tampico fibre</i> ' (chiefly used in brush making) belong for the most part to a different section of the genus from the <i>Eragrostis</i> . None have been so far planted in any part of India except here and there in gardens. See also <i>Broom root</i> , <i>Brush fibre</i> (1) and (2), <i>Mexican fibre</i> , <i>Tampico fibre</i> and <i>Refje</i>
III	This belongs to the <i>Eragrostis</i> section, but has nothing to do with the <i>Mescal</i> of the southern parts of Mexico. It is practically unknown in India.
93	A spelling (more correct perhaps) of <i>Ixtle</i> , which see, also <i>Ixtle</i> (1) and (2)
140	See <i>Ixtle</i> , and <i>Ixtle</i>

NAME	Authority	Language	Where used	Scientific determination
IXTLV	...	Astec ?	Central America (Mexico)	..
JAMINABAD ALOE	Pharmacog. Ind.	English	India	<i>Aloe</i> , sp.
JAMAICA KEN-ATTO	J. G. Baker	Do	England	<i>Agave Morrison</i> , Baker
JANGOL ANANAS	Balfour (Cyclo-pædia)	Hindustani	India (Bengal, &c.)	<i>Agave americana</i>
JANGOL ANAN	Pharmacog Ind.	Ditto	S. W. India	Ditto
JANGOL KUNYANA	Watt E. D.	Ditto	India (Guzerat)	<i>Agave americana</i> , Linn
JERVI KATHALAI	Govt Botanist, Madras	Tamil	S India (Salem)	<i>Agave Vera Cruz</i> , Mill.
JERUQUEM	Schott (in Engelmann)	Maya Indian (in Spanish form)	Central America (Yucatan)	<i>Agave</i> sp.
JUKOLI	Dodge	Bengali	India (Bengal)	<i>Agave americana</i>
KADANAKU	Rhede	Malayalam	S India (Malabar coast)	<i>Aloe</i> sp.
KADI	Forakohl Fl. Arg. Ar p. 172.	Arabic	Arabia Felix Yemen.	<i>Khura odorifera</i> .
KALABANDA (1)	Pharmacog. Ind.	Telegu	S. India	<i>Aloe vera</i> , Linn.
KALABANDA (2)	Govt. Botanist, Madras	Tamil	S India (Nellore, Cuddapah)	<i>Agave Vera Cruz</i> , Mill.
KALABANTHA	Balfour (Cyclo-pædia)	Do.	S India	<i>Agave americana</i>
KLABONDA	Govt. Botanist, Madras	Telegu	S India (Ananta pur, Nellore, Bellary)	<i>Agave Vera Cruz</i> , Mill.

Page	REMARKS
..	A variation of <i>Yztle</i> . See <i>Yztle</i> (1) and <i>Yztl</i> .
113	A sort of bitter aloes made at <i>Jafirabad</i> in Guzerat by families claiming African descent
91	From the description this <i>Eugave</i> would seem near to our <i>Agave</i> (H), but we think the Indian plant is allied rather to the ' <i>Sisalana</i> ' group including (b) and (F), and a likely fibre producer. See <i>Keratto</i> also.
96	Meaning 'wild pineapple' We have not met with the expression
96	Cf the above, also <i>Nanas utan</i> , <i>Keda aonaz</i> , etc
96	Cf <i>Bara Kanwar</i> , <i>Kunwar</i> , etc also <i>Gritha Kumari</i> : the species may be (D) = <i>A Vera Cruz</i> , Mill.
86, 147	From <i>Jin</i> (a demon)? but cf <i>Chini Kalabanda</i>
144	Another spelling of <i>Jenequen</i> , which see We do not know precisely what Schott meant by the term, not having his original report before us Engelmann ascribes all the best Yucatan fibre to ' <i>A rigida</i> Miller,' and its supposed varieties, <i>sisalana</i> and <i>lonoyfolia</i> , but Schott seems to have relied a good deal on local accounts, and his <i>Jenequen</i> may have included fibre from other sources See <i>Sisal Hemp</i> also
96	'Ananas' (or the like) has evidently dropped out in printing See <i>Jungli ananas</i> above
113	Sometimes spelled <i>Kadenaku</i> The first two syllables are probably
96	
96	
96	We have not been able to discover the meaning of this widespread name,—but see <i>Kalabanda</i> and <i>Klamanda</i>
87, 147, &c	Cf the preceding Many changes have been rung on the spelling
96	= the preceding
87, 147	No doubt a variant of <i>Kalabanda</i>

NAME	Authority	Language	Where used	Scientific determination
KALABUNDA	Ambo Mat Med 1813	Telegu	E India	<i>Aloe</i> sp
KALABUNDA	Liottard?	,	S India (Madras)	<i>Aloe perfoliata</i>
KALA KANTALA	Balfour Cycloperdis	Sanscrit	India	<i>Agave americana</i>
KALBANDA	Fallon (Dict)	Haiti	India	<i>Aloe perfoliata</i>
KALKALI	Do	Hindi (Tibhat dialect)	N India (Bengal)	Ditto
KALWAN	Dodge		India	<i>Agave</i> sp
KALWAR	Liottard	Hindustani (Deccani)	India (Bombay)	Ditto
KAN	Dodge	Maya In- dian	Central America (Yucatan)	<i>Agave rigida</i>
KANTALA	Pharmacog Ind.	Sanscrit	India	<i>Aloe vera</i> , Linn
KANTAL		Bengali	N. India (Bengal)	<i>Artocarpus integrifolia</i> , Linn

Page	REMARKS
113	It seems almost as if in Telegu <i>Kalabanda</i> were the true aloe, in Tamil the <i>Agave</i> .
113	The first fibre products from 'Kalabuntha' sent to Europe from Madras (by Dr Hunter) were ascribed to a true aloe. Later <i>Agave</i> fibre was sent from the same quarter under the same name of <i>Kalabuntha</i> .
96	<i>Cf. Kalabanda and Kentala</i>
96, 113	'Kal' in 'Hindi,' etc. = 'evil,' 'bastard,' 'degenerate,' etc. 'Banda' in Hindustani = parasite or epiphyte (e.g. <i>Loranthus</i>). See also <i>Klamanda</i> , of which possibly <i>Kalabanda</i> may be a corruption.
96, 113	See the preceding.
	Perhaps taken from the following
...	<i>Cf. Kalabanda, Kalkals</i> , and see <i>Nar</i> . Reported from the S. Afahratta country.
143	Evidently one of the <i>Eugagates</i> of Lucatan or a <i>Farcraea</i> .
113	An epithet of the true <i>Aloe</i> meaning 'iberry'. Cf. <i>Catrala</i> , <i>Kadanals</i> , etc., and see <i>Cantala</i> , <i>Kathal</i> , <i>Kuntala</i> and the following.
	See <i>Kathal</i> . This was also possibly a <i>Kuntala</i> . The jack fruit is perhaps only introduced in N India, but very anciently. The pronunciation and spelling vary: this has both the vowels fairly broad (accented).

NAME	Author ty	Larg use	Where used	Scientific determination
KANTALA (1)	Stewart (Panjab Plants, p 232)	Panjabi?	Panjab?	<i>Agave Kantala</i> , Roxb
KANTALA (2)	Watt E.D	Sanscrit	India	<i>Agave vivipara</i> , Linn.
KANTALA (3)	{ Faint (Ve- getation of Hugbli Howrah, and 24 Par- ganahs) }	Bengali	Bengal	<i>Agave Fera Cras</i> , Mill.
KASAO	Moerman, (The Ramie etc)	Japanese	Japan	<i>Boehmeria</i> sp.
KARAOATA	De Laet (in Sloane)	Carib?	Antilles	<i>Ananas sylvestris</i> , <i>Brasiliana</i> , Hern ?
KASATA	Du Rortre (in Sloane)	French	Do.]	Ditto
KASATA, SAUTAGE	Do.	Do.	Do	<i>Alm Inacoe folios</i>

NAME	Authority	Language	Where used	Scientific determination
KAROV KUTTA-LAY NAR	Madras Esh. Cat. 1857	Tamil	S. India (Madras)	<i>Agave</i> sp.
KARUN KATHAL	Govt Botanist Madras	Do.	S. India (Dindigul)	<i>Agave Vera</i> Cruz, Mill.
KARUN KATHALAI	Do	Do	S. India (Coimbatore, Tinnevely)	Ditto
KATAR	Fallon (Dict.)	Punjabi	Panjab	<i>Artocarpus integrifolia</i>
KATHAL	Do	Hindi	N India	Ditto
KATHALAI	Watt E D	Tamil	S. India	<i>Agave americana</i> , Linn
KATHALAY	Balfour (Cyclopaedia)	Do.	Do	<i>Agave ricinifera</i> , Linn
KATHAL	Govt Botanist Madras	Do.	S. India (Guddeparab, Dindigul)	<i>Agave Vera</i> Cruz, Mill
KATTAL
KATTALA	Govt Botanist Madras	Telegu	E India (Bellary)	<i>Agave Vera</i> Cruz, Mill.
KATTALAY	Ainslie Med Mat (1816). —1-10	Tamil	E India	<i>Aloe perfoliata</i> , Linn.
KATTALI	Cameron (Bangalore Cat.)	Canarese	S. India (Mysore)	<i>Agave americana</i> , Mill.

NAME	Authority	Language	Where used	Scientific determination
KATTALI PIRRE	Madras Exh Cat 1855	English	S India (S Arcot)	<i>Agave</i> sp
KATTALI	Do 1857	Canarese	S India (Madura)	<i>Agave</i> sp
KHA	Rosburgh (Hort Beng)	Bengali	Bengal	<i>Pandanus odoratus</i> R
KHA KANTA	Do	Do	Do	<i>Pandanus forsteri</i> DC R
KHYDA	Watt & D	Hindustani	Do	<i>Pandanus odoratus</i> , Willd
KERAYTO		Spanish	W Indies	<i>Agave</i> sp
KETAKI	Fallon (Dict)	Fali	S India	<i>Pandanus odoratus</i>
KETOI (1)	Do	Hindi	India	Ditto
KETOI (2)	Watt & D	Do	Central India (Deccan)	<i>Agave americana</i> Linn
KETKI (1)	Fallon (Dict)	Do	India	<i>Pandanus odoratus</i>
KETKI (2)	R. & P Govt of India	Do	Central India (Berar)	<i>Agave</i> Wightii (of this Bulletin)
KETKI (3)	Liotard	Guzerati	Western India (Kathawar)	<i>Pandanus odoratus</i>
KETUKKE	Roxb (Hort Beng)	* Sanscrit *	India	Ditto
KETUA	Do	Bengali	Bengal	Ditto
KHORKANTA	Do	Hindustani	Do	Ditto
KHETKI	Watt & D	Do	N India (Oudh)	<i>Agave vivipara</i> , Linn
KIRANOMA MA THA.	Govt Botanical Madras	Telegu	S India	<i>Agave Vera</i> Cruz, Mill

* An unpublished coloured drawing however made under the supervision of Buchanan (afterwards Hamilton) and now preserved at Kew gives *Ketki* as a vernacular name for a plant which is unmistakably *A. Cantala* Roxb

Page	REMARKS
95, 113	Cf <i>Kathalay</i> , <i>Kathah</i> , <i>Kattalay</i> , etc
95, 113	Do. Do
	Cf <i>Ketaki</i> , <i>Keura</i> , <i>Kia</i> , <i>Koyan</i> , etc., and the next Dodge spec is this ' <i>Keya</i> ' Called ' <i>Kekel</i> ,' ' <i>Keker</i> ' in Malaya
...	For other names and scientific designations see 'Bengal Plants,' p 1101 Species of <i>Pandanus</i> are native in different parts of India, but those usually found in hedger or near temples in Bengal were probably imported from Malaya
.	See <i>Palkande</i> Probably a dialectic form of <i>Kenta</i>
117, 123	Originally <i>Caraguata</i> (which see) but in Jamaica and other West Indian Islands now commonly applied to species of <i>Agave</i> and <i>Furcraea</i>
..	Cf the next, <i>Ketki</i> , <i>Ketukse</i> —and <i>Ketys</i>
	Cf the preceding and following
93	See the next also, and <i>Banskeora</i>
	Cf <i>Ketaki</i> , etc
...	In the drier parts of India <i>Agave Wightii</i> (J) has made itself at home, and has acquired fairly constant local names, such as <i>Ketki</i> and <i>Banskeora</i>
	Fibre of leaves proposed as a paper stock, identification doubtful possibly an <i>Agave</i>
.	= <i>Ketaki</i>
..	
...	
91	Probably (J) brought from the Deccan and planted about forts and settlements by the <i>Rohillas</i> , as in the <i>Ganges Doab</i>
86, 147	' <i>Matta</i> ,' ' <i>Motta</i> ' or ' <i>Mafila</i> ' is frequent in the names of <i>Agaves</i> in S India (from <i>Mata</i> =Devil?); for ' <i>Kanora</i> ,' cf. <i>Kanur</i> , <i>Kanur</i> ;- and for the first syllable <i>Kea</i> , <i>ghikomar</i> , etc.

NAME	Authority	Language	Where used	Scientific determination
KITHALI NARA MATHA	Govt. Botanist Madras.	Telegu	S India (Ganjam)	Agave Cantala, Roxb.
KITHAYARA	Do		S India (Godavari)	Ditto
KITEI	Stewart (Panjab Plants, p 232)	Hindi?	Panjab	A. Cantala, Roxb.
KITTA NAR	Madras Esb Cat 1857	Telugu	S India (Rajahmundry)	Agave sp.
KITTAYARA	Balfour (Ocul. pandia)	Tamil	S India	Agave Cantala, Roxb.
KITTAYARA MAT TALO	Govt Botanist Madras	Telugu	S India (Godavari)	Agave Vera Cruz, Will
KITTAULKE NAR	Madras Esb Cat 1857	Tamil	S India (Vizianagaram)	Agave sp.
KLAMANDA	Do	Canarese?	Do	Do
KOOMARU		Hindi	India	Aloe spp.
KOTAN	Mukerji (Deser Cat Ind. Prod. Amsterd. etc 1883)	Bengali	Bengal	Agave americana
KUNTALA	Roxburgh (Hort. Beng.)	Sanskrit	India	Agave Cantala, Roxb.
KUNWAR	Ainslie	Deccani	Central and Western India	Aloe sp.
KUTTARAY	Ainslie Mat Med (1826), ii—160	Tamil	S India, Madras	Do.

Page	REMARKS
87, 147	Cf the preceding, but 'Nara' is here perhaps 'fibre'.
87, 147	Cf. <i>Anakytia</i>
100, etc	Stewart cites 'A vivipara Royle' as a synonym, by which he meant possibly A vivipara of Wright=(J) but from a coloured drawing made under the auspices of Buchanan (afterwards Hamilton) preserved at Kew it appears that the plant known to Buchanan as 'Keki' was A. <i>Cantala</i> Roxb
147	Cf the next, also <i>Kithanara</i>
147	This is probably correct Cf <i>Kithanara</i> Cf <i>Kithanara</i> , etc.
80, 147	... other Indian species
88 147	Cf <i>Munda</i> and <i>Kalamanda</i> , also <i>Kalabanda</i>
113	See 'Cumari' The correct transliteration is <i>Kumari</i> .
90	Probably from the local name of <i>Pandanus fascicularis</i> , Lam (Bengal Plants, p 1101)
120, 130, 136	Cf. <i>Kantala</i> and <i>Cantala</i> .
113	In Guzerat: 'Kavara' or 'Kumara'.
...	Cf. <i>Bara Kanwar</i> , <i>Catecomer</i> , etc.
113	...

NAME	Authority	Language	Where used	Scientific determination
KUTTHALAI	Brown and Wood	Tamil	S. India, Madras	<i>Aloe</i> sp.
KUAR GAYDAL	Stewart (Panjab Plants, p 232)	Panjabi	Panjab	<i>Aloe indica</i> , Boyle
KYRU	Alonso	Deccani	S India	<i>Agave viscapara</i> , Linn
LAYDA	Et de Placourt (in Bloune)	French	Malagasy	<i>Aloe Yuccaefolia</i> ?
LAL MURGA	Piddington (Index)	Bengali	Bengal	<i>Celosia cristata</i> , Linn.
LAYOU BOUUF	Dodge	French	Antilles	<i>Furcraea cubensis</i>
LARGE ALOE FIBRE	Mad Exh Cat 1855	English	S. India (Tinnevely)	<i>Agave</i> sp
LECHUGILLA	Miss Garden Rept., 1896 (also Dodge, Rose and others)	Spanish	Central America (Mexico)	<i>Agave</i> sp.
LIDA BOAYA	Ratupf	Malay	Moluccas, &c.	<i>Aloe</i> sp
LILY FIBRE	Indian Agriculturist, Dec. 12, 1891	English	England	<i>Agave americana</i>

Page	REMARKS
113	When used without any qualifying addition this seems generally to refer to <i>Aloe</i> and not <i>Agave</i> ; but see <i>Kaffal</i> .
113	Means "Thorn-canon" the first part is <i>Kanscar</i> , &c., above
90	'Kyre,' probably is from <i>Keora</i> or <i>Keura</i> usually in N. Ind. a given to <i>Pandanus</i> . Perhaps this word is the same as <i>coir</i> and means simply 'fibre'. Old writers speak of a <i>Quera</i> as yielding fibre near the Portuguese factories. Ainslie attributes his <i>kyre</i> which was a 'strong and useful cordage' to an <i>Agave</i> most likely (J) of this Bulletin. See also <i>Mellis Kyre</i> and <i>Kedi</i> .
77	This looks like one of the African names of <i>Sansevieria</i> (at Angola Ifé = <i>S. cylindrica</i> , Bojer) with the French definite article prefixed. Flacourt was Governor of Madagascar in the 17th century and in Bojer's time <i>S. cylindrica</i> was cultivated in the Ile de France as a native of Zanzibar. See also <i>Anana de gite</i> , <i>Bowstring Hemp</i> and <i>Pitte Ahetz</i> . Spon states that a valuable fibre is obtained from a plant but as Sir George W. required <i>Celastrum</i> or ornamental plant with autumn crops throughout N. India. Spon's authority may have been misled by a vernacular name. Cf. <i>Murga Moorta</i> &c. <i>Lal Murga</i> evidently means 'Red Cockscomb'.
94, 95	See <i>Cabuya</i> , <i>Henequen</i> (1) and (2), <i>Mauritius Hemp</i> , &c.
95, III	Probably (D)
III	A
113	'Crocodile's tongue' as distinguished from 'Nana banya' (crocodile pineapple) which we take to be <i>Agave Cantala</i> Roxb. = (E) or a very closely allied species. Blanco gives 'Lidang banya' as a name of <i>Aloe</i> in the Philippines.
69	The article quoted states that this is a white lustrous and superior kind of fibre used in brush making which is obtained from <i>Agave americana</i> in Mexico and might be abundantly produced in India; but see <i>Aloe fibre</i> , <i>Mexican fibre</i> (1), and <i>Tampico fibre</i> .

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
LONG ALOR (1)	Hire (Mysore Gazetteer)	English	S India (Mysore)	Agave sp.
LONG ALOR (2)	Madras Fish Cat 1855	Do.	Ditto	Agave crispata
MACENDIRA	Martius	Tupi Indian	S America (Brazil &c.)	Bromelia lacini- osa, Mart.
MACORTIO METL	Hernandez	Astec	Central America (Mexico)	Agave sp.
MADRE PULQUE	Martius (and others)	Spanish	Ditto	Agave atrovir- dens Karwinskii and other species
MAOAY	Edwards	Filipino	Philippines	Agave sp
MAOYAY	H B K	Do	Ditto	Agave americana
MAOUAY DE COGUY	H B K	Spanish	S America (Vene- zuela)	Furca aculeata, H B K
MAOUAY DE COGUYA	Do.	Do.	Ditto	Ditto
MAGUR	Edwards	Filipino	Philippines	Agave spp
MAGURI	Jacquin (Sel. St. Amer.)	Spanish	Cuba	Agave cubensis
MAGURIS	Hakluyt	Do	Central America (Mexico)	Agave spp

Page	REMARKS
131	Probably Agave (J) i.e., our <i>A. Wrightii</i> (See the next and <i>Sicré Aloe</i>).
181	Ditto ditto ditto
III	Martius says Maci='hammock' and Embira='string' <i>Bromelia laciniosa</i> Mart is believed to be= <i>Karatias Plumieri</i> Morror, for which see <i>Little</i> (1) and (2)
109	See <i>Costia Metl</i>
140	The thickened drops of the sap of the <i>Pulque Agaves</i> left in the 'cajete' or cavity of the plant—added to the sap after it has been drawn off to promote fermentation
99	= <i>Maguay</i>
99	Humboldt in his own writings has noted clearly that the <i>Maguay</i> he saw in Mexico was planted or cultivated and that there were several kinds not belonging to the genus <i>Agave</i> exclusively. Kunth in dealing with the botany of Humboldt's travels described only one <i>Agave</i> which he referred (erroneously as appears from the works of Rose and others) to the <i>A. americana</i> of Linnaeus (See also <i>Pulque Tequila</i> &c) and stated that this occurred throughout Central America as far N as Florida. The native place of <i>A. americana</i> Linn., is not known but it seems doubtful if it is found except in gardens even in Mexico. See also <i>Maguay</i>
98	So called at <i>Caracas</i> (at that time) and used for fibre
98	At <i>Cumana</i> , and used similarly Cf. <i>Coguis</i>
97	This is a provincial spelling in the Philippines. Other versions in the same islands are <i>Amayues</i> (which see) <i>Maguer</i> , <i>Maguer</i> , and <i>Magus</i> . The plant or the fibre is called also in some parts 'pita'. Cf. also <i>Magus</i>
III 95	<i>Maguer</i> appears in Hernandez both for the cider 'Metl' and for a species which does not seem to be a fibre <i>Agave</i> . Jacquin says his <i>Maguel</i> is common in Cuba and used as a detergent. It is a <i>Furcrata</i>
107, 110	The <i>Maguay</i> is so called by early English travellers. Cf. <i>Lagueres</i> (2)

Glossary of local and commercial terms referring to the

NAME	Auth city	Language	Where used	Scientific determination
MAGREY (1)	Oviedo	Spanish	Antilles	<i>Agave ciliaris</i>
MAGREY (2)	Do	Do.	S America	<i>Agave americana</i>
MAGREY (3)	Peter Nar tyz (in Martius, also in Daniell.)	Haitian	Antilles (Haiti)	<i>Agave sp?</i>
MAGREY (4)	Squier	Spanish	Central America (Mexico)	<i>Agave mexicana</i>
MAGREY BLANCO	Dodge	Do.	Ditto	<i>Agave Solimiana</i>
MAGREY CIMAR RON	Sch ede (in Lin naea)	Do	Ditto	<i>Agave ameri- cana</i>
MAGREY DE TEQUILA	Dodge	Do	Ditto	Ditto
MAGREY MANZO	C Beni (in Dani elli)	Do.	Ditto	<i>Agave Maximil iana P & I Blasquez.</i>
MAGREY MATSO YERO	Dodge	Do.	Central America (District of Mexico)	<i>Agave ameri cana</i>
MAGRETES (1)	Oviedo	Spanish	Central or S America	

Page	REMARKS
121	Martius says that there is a drawing with the supplement of <i>Oviedo</i> which shows as the original <i>Maguey</i> a smaller plant than either <i>A. americana</i> or <i>Furcraea cubensis</i> and suggests that it may have been <i>Agave vucipara</i> but by this he did not mean perhaps <i>Agave Wrightii</i> (J) of this Bulletin
99	<i>Oviedo</i> quoted by <i>Martius</i> (Bertrag, p. 10) says that on the mainland in the country of <i>Araya</i> there is a nation on whose lands the <i>Maguey</i> is so abundant that they are called 'Magueyes'. The allusion is perhaps to the Maya plantations. From a recent work on Costa Rica reviewed in <i>Nature</i> No. 1816, dated 16th March 1905, it appears that parts of the Isthmus were held in the 16th century by a civilized race called <i>Mangue</i>
103	The first mention of <i>Maguey</i> is by this author who says the ancient inhabitants of Haiti had a sort of drum or cymbal which was called <i>Maguey</i> . <i>Martius</i> thinks that these drums may have been made from the scape of an <i>Agavea</i>
125	<i>Squier</i> rightly distinguished the Pulque <i>Agave</i> from the so called ' <i>A. americana</i> ,' but <i>Agave mexicana</i> of <i>Linnaeus</i> is a misnomer, and the <i>Agave mexicana</i> of <i>Moore</i> (in <i>Gardener's Chronicle</i>) is more probably <i>Agave</i> (F) as to which see ' <i>Tequila</i> '. <i>Hates</i> (in <i>Stanford's Compendium</i>) also calls the <i>Maguey</i> <i>A. americana</i> and suggests that there is only one species throughout the 'Tierra Templada' from <i>Zapopan</i> eastwards
85, 147	<i>A. Salmiana</i> <i>Otto</i> is commonly identified with <i>A. atrovirens</i> <i>Kerwiniski</i> , which is said to be one of the chief Pulque <i>Agaves</i> in the State of <i>Nuevo</i> . A large <i>Agave</i> is met with in gardens on the Continent of Europe under the name of <i>A. Salmiana</i> . Our <i>Agave</i> (L) appears to be near this species
123	Meaning 'Wild <i>Maguey</i> .' Travellers have frequently reported finding ' <i>Agave americana</i> ' wild but truly wild examples of <i>Linnaeus'</i> <i>A. americana</i> , of the Pulque <i>Agaves</i> , and of <i>A. sisalana</i> , if they exist, remain to be discovered.
95, 96	See <i>Tequila</i> .
150 (footnote)	See <i>Maguey mansosino</i> . <i>Benl</i> says the scientific name is ' <i>Agave Massimilianiana</i> .'
95, 93	Meaning 'fine cultivated <i>Maguey</i> ,' to distinguish a plantation kind from spontaneous hedge <i>Agaves</i> . It is unlikely that the term is restricted to the one species. A Mexican writer professes to have distinguished over 16 sorts in the <i>Apam</i> tract alone which is the principal Pulque making area. He must have taken count of very fine distinctions, but even so the statement is significant. An Indian tribe of Central America in the 16th century 'named from the <i>Agave</i> ' See <i>Maguey</i> (2), but cf. the next also.

NAME	Authority	Language	Where used	Rel. affilia- determination
MAGREYS (2)	Zurita (in Martius)	Spanish	Central America (Mexico)	"
MAORI	El Harco (trade Filipinas v Agave)	Filipino	Philippines	<i>Agave americana</i>
MAGWEIR	Hallroyd, etc	Spanish	Central America (Mexico)	<i>Agave</i> spp.
MALAI KATHALAI	Govt Bot anal Madras	Tamil	S. India (S Arcot)	<i>Agave Vera</i> Cruz Mill
MALAI KATTALAI	Ditto	Do	S. India (Tanjore)	Ditto
MALAY KUTTA LAY NAR	Ainslie	Do.	S. India	<i>Agave vivipara</i> , Linn
MALINGO	Coulter	Spanish?	Hawaï	<i>Furcraea</i> spp.
MANCHI KALA SUNDA	Govt Bot anal Madras	Telegu	S. India (Cudda- pah)	<i>Agave Vera</i> Cruz Mill
MANGUAI	Ditto	Spanish	America	<i>Agave</i> spp.
MANOVES	Loeschoten (in K. Hauk.)	Do.	Do.	Ditto
MANOURIE	Pédro Ordoune (in Sloane)	Spanish	America	<i>Aloe secunda?</i>
MANILA	Kew Sci Papera (Addl Ser II), LXII	English	Turks Islands	<i>Furcraea cadu- ca</i>
MANILA ALON FIERRE	Kew Sci Papera (Addl Ser II), LXII	Do.	Philippines	<i>Agave vivipara</i> L.
MANJIB	Mad Fsh Cat 1847	Decan	India (Hyderabad)	<i>Agave</i> sp.
MANJIVA NARU	Cameron (Bangal- lon. Cat.)	Canarese	S. India (Mysore)	<i>Sonchiera Zey- lonica</i> , Roemer

Page	REMARKS
...	Magney farms or plantations were so called by the early Spanish invaders of Mexico.
80	Mr. Edwards notes that this form of the name survives locally. The common naturalized Agave in the Philippines proves to be <i>A. Cantala</i> , Roxb.
109, 110	Cf. <i>Magueis</i> and <i>Magueyes</i> (2).
86, 147	= Agave (D). Meaning of 'Malal' not known
86, 147	Ditto ditto.
95, 96	Perhaps Agave (J).
94, 95	Brought from America presumably.
86, 147	Agave (D). Cf. <i>Manjina Nar</i> , <i>Motta Manjee Nar</i> , etc.
99	A variant of <i>Maguey</i> .
99	Ditto.
116	As Sloane states that <i>Cubaja</i> was another name, the plant was doubtless a <i>Furcraea</i> .
..	See also Silk grass (4).
188	The naturalized Philippine species proves to be <i>A. Cantala</i> , Roxb.
...	Cf. the next and <i>Manjee Nar</i> .
77	(Misprint in the botanical name altered.) Cf. <i>Motta Manjee Nar</i> and <i>Manchi Kalabanda</i> .

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
MAQUET	Both (in New Sci Papers Addl Ser II-LXIV)	Spanish	Central America	<i>Agave</i> spp
MAROOT	Mad Fsh Cat. 1857	Telugu (and Tamil)	S India	<i>Sansieria Zey- lanica</i>
MARUL (1)	Watt E D	Hindustani	India	<i>Sansieria Zey- lanica</i> , Wild
MARUL (2)	Brit at Malaya	Tamil	S India (Tanjore)	<i>Agave Vera- Cruz</i> , Mill
MAST	New Gard P. jurt B. det	F. local	N America	<i>Agave</i> spp
MAURITIUS HEMP	New Sci Papers (Addl Ser II) LXV LXVI	F. local	Cosmopolitan	<i>Furcraea</i> sp.
MAURVI	Asiatic Re- searches IV, 271	Sanskrit	India	<i>Aletris</i> , Linn

Page	REMARKS
	A variant of <i>Magney</i> . If this represents the actual sound, the original is possibly 'Ma qui,' and the second syllable — Qui — Qui (q v)
77	'Kettalay Har' from Travancore at the same exhibition was apparently <i>Sansevieria</i> in which case the same local name would cover <i>Aloe</i> , <i>Agave</i> , and <i>Sansevieria</i> , but perhaps there has been a mistake in ticketing
77	This (Marul) is the correct transliteration
87, 147	Cf. the preceding and <i>Marool</i> also
80 82	Applied in the U. S. A. to the scape or 'po's' of <i>Eragrostis</i> and <i>Furcraea</i>
04-95	It is usual to ascribe this commercial fibre to <i>Furcraea gigantea</i> Vent., but the plants grown in S. India do not always, or even ordinarily, answer to that species as defined by Mr. Baker. From the authority quoted by us it is clear that several species of <i>Agave</i> and <i>Furcraea</i> to say nothing of <i>Sansevieria</i> have run wild in the Mauritius while the "Mauritius Hemp" that comes from St. Helena is not perhaps from a <i>Furcraea</i> at all, but from the St. Helena <i>Agave</i> , (<i>A. angustifolia</i> of the Buitenzorg Garden) which may be <i>Agave</i> (E) i. e., Roxburgh's <i>Agave</i> — <i>A. Cantala</i> of this Bulletin. Wright's S. Indian <i>Furcraea</i> (see Part I, p. 10) and Cayen above also the ' <i>Agave viridis</i> ' of Madras Exhibit on Catalogues are perhaps <i>Furcraea coccinea</i> Ait. which is said to be the best fibre <i>Agave</i> of the West India Islands. Different <i>Furcraeas</i> thrive throughout the mountain parts of India, and the fibre is being brought into use in N. India also. Certain of the species tend like <i>Agave</i> (G) (<i>Sisal</i>) and the Honduras Silk Grass plant [see <i>Jute</i> (1) and (2) and <i>Silk Grass</i>] to lose the side-thorns (prickles) of the leaf in cultivation. The true <i>Agave foetida</i> of Linnaeus grows in the Sibpur Garden, but we doubt its identity with the Mauritius Hemp plant of S. India. It seems to be common along the coasts of the Isthmus and the Orinoco region where it yields 'Cobblers thread'—See <i>Aloe Vert.</i> , <i>Cobys Hay's Hemp</i> , <i>Pite d'Haiti</i> , <i>Piet Pita de Zapatera</i> , &c.
77	The <i>Sansevieria</i> fibre or Bowstring Hemp of Roxburgh (to be distinguished from the <i>Marsdenia</i> or <i>Jute</i> bast, said to be the 'Muruvu Dai' of Ceylon). The name of the plant as distinguished from the fibre was 'Murva' which survives in the Bengali <i>Murva</i> or ' <i>Moorba</i> ' (Hengal Plant, p. 1054). Species of <i>Sansevieria</i> were at first referred to the genus <i>Aletris</i> .

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
MAYA	Spuler	Cuban	Cuba	<i>Agaveae</i> spp.
MATPOLA	Hughes' Hist. Barbadoes (in Martins)	English	Antilles (Barbadoes)	<i>Furcraea colensis</i> , Haw.
MELLIS KTH	Amalio	Portuguese ?	India (Deccan)	<i>Agave vivipara</i> , Linn.
MESCAL	Miss Gard. Report 1896	Spanish	Central America (Mexico)	<i>Agave</i> spp.
METL	Hernandez (and others)	Aztec	Central America	<i>Agaveae</i> spp. also <i>Bromeliaceae</i> .
METL COTIL	Hernandez	Do.	Central America (Mexico)	<i>Agave</i> sp.

NAME	Authority	Language	Where found	Scientific name
AMERICAN GRASS	Oulfoyle	Polish	Australia	<i>Agave xanthan</i> Lect. ne (ant allid spec es)
MEXICAN HERB	Do	Do	Ditto	Ditto
MEXICAN WHISK	Kew Bot Papers (Add Ser II) LXXX and LXXXI	Do	Europe and America	<i>Epilampes ma rouro Bth</i>
MEXOCOTL	Heynarda	Aztec	Central America (Mexico)	Bromellaceae Spp
MIZCAL (1)	D dco	Vern	Ditto	<i>Agave potat um Zuccarin</i>
MIZCAL (2)	Jackson	Do	Ditto	<i>Agave ameri cana</i>
MONCHA	Ill t of Ind	Heilp	Central India (S. India)	<i>Agave Vera Cruz Vill</i>
MOTTA MUNJEE NAR	Mad Fub Cat 1865	Telugu?	India (Madras)	<i>Agave Sp</i>
MUNDA	Govt Bota n at Madras	Malayalam	S India (Malabar)	<i>Agave Wrightii</i> (or t. a. Wallett n)
MUNJEE NAR	Mad Fub Cat 1867	Canarese?	S India (Coast)	<i>Agave Sp</i>
MURAGA	Asiat. et herb. IV 271	Hindi	India	<i>Aloe Linn</i>

Page	REMARKS
89, 147	Dr Guilfoyle says that this name is given to the <i>Sisal Hemp</i> fibre (from species allied to <i>Agave sisalana</i> Perrine) It is also mentioned by Dodge in his valuable ' <i>Useful fibre Plants of the World.</i> '
83, 147	This is no doubt the 'Sisal' introduced into Australia, which we believe to be <i>Agave</i> (G) of this Bulletin See <i>Sisal Hemp</i> also
.	This has been confused in India with <i>American fibre</i> (1) (which see) and with the fibre locally obtained for brush making purposes from species of <i>Eragrostis</i> naturalized in India The American product is used as a substitute for fibre obtained in Europe from different <i>Gramineae</i> (true grasses) some of which are believed to be abundant in the Himalaya also In America brooms are made also from an <i>Aristida</i> closely allied to species that abound in India e.g., the 'broom sticks' of the Madras Presidency
108	Probably <i>Bromelia Pinguin</i> Linn Given with the different kinds of <i>Meli</i> , but not as a fibre plant Mr Ross observes that the <i>Pulque</i> and <i>Mescal</i> Agaves are of different species in different parts of Mexico We do not know whether <i>Agave</i> (D) is one of them and cannot therefore say whether any have been naturalized in India See also <i>Mescal</i>
90	A version of <i>Mescal</i> See also <i>Mescal Meli</i> and the preceding.
86 147	<i>Agave</i> (D) Perhaps from the Bengali <i>Marga</i> which see.
95, ■	Cf <i>Manchi Kolabunda</i> , <i>Manjee</i> , <i>Manjee Har</i> , &c
91, 147	= <i>Agave</i> (J) Cf <i>Kalamanda</i> In the <i>Pharmacographia Indica</i> it is noted that the true aloe is called <i>Mandala</i> because of the scimeter like leaves
90	Cf <i>Manjee Metta Manjee Har</i> , &c Doubtfully the same as the 'Fibre of Mungie Plant' shown from Mysore in 1855
77	Usually now spelled 'Mur a' There are many variations such as <i>Murva</i> , <i>Murgab</i> , <i>Murgahvee</i> , <i>Moorgale</i> , <i>Murva</i> , <i>Murba</i> , <i>Moerba</i> , etc., but all usually refer to the Bowstring Hemp of Roxburgh—a species of <i>Sonneratia</i> (In Ceylon however 'Muravudul' is said to be the last of <i>Marsdenia tenacissima</i> W & A) As a name of <i>Sonneratia</i> this has found its way to the West Indian Islands See <i>Maurer</i> and the next also

NAME	Authority	Language	Where used	Scientific determination
MURGA (1)	Watt E. D.	Bengali	Bengal	<i>Agave americana</i>
MURGA (2)	R. E. P. Government of India	Bengali	Central India (Singhbum)	<i>Agave Vera Cruz</i> , Mill.
MUSAMBRA	Pharmacographia Indica (III, 472)	Canarese	S. India	<i>Aloe</i> sp. [1]
MUTTA SAGA	Govt Botanist Madras	Telegu?	S. India (Ganjam)	<i>Agave Vera Cruz</i> , Mill.
MYSORE ALOE	Pharmacographia Indica (III, 472)	English	S. India	<i>Aloe</i> sp.
NANAS BOAYA	Rumpf	Malay	Amboyna (Malay Archipelago)	<i>Agave Cantala</i> , Roxb.
NANAS UTAN	Do.	Do.	Java, &c.	<i>Agave</i> sp.
NANNAS SABRANG	Hasskarl (in 'Flora', II, 1843 p. 5).	Do.	Java (Sunda, &c.)	<i>Agave Rumphii</i> , Hasskarl.
NAR	Alnalie	Tamili?	S. India	<i>Agave</i> , &c.
NEQUANETL (1)	Piso	...	S. America	<i>Furcraea tuberosa</i> , Ait.

Page	REMARKS
95, 96	It is not quite clear whether the older authorities regarded 'Muraga' or 'Murga' as derived from <i>Morus</i> . The ordinary word for a gamecock is commonly derived through the Persian from the Arabic, but the wild bird is Indo Malayana, and 'Murra' is given by some authors as a variant of 'Murgha,' so the word may be originally Indian. In N India <i>Sansevieria</i> is as much an incomer as <i>Agave</i> (see Bengal Plants, 1054), and when <i>Murga</i> is applied in N India to <i>Agave</i> the allusion is plainly to the 'terrible spurs' as an American writer calls the spines of certain species. The habit of the leaves in <i>Sansevieria</i> may have earlier suggested a fanciful resemblance to the spur of a 'Bantam'.
86, 147	See the last and <i>Mordha</i> .
113	From the Arabic name of the true Aloe (see <i>Sabr</i> , etc.) and common term for the <i>drug</i> throughout India, but in S India locally applied also to a 'size' or 'glue' used in house decoration, much as gilder's <i>size</i> is used in Europe, it seems possible that this is obtained from an <i>Agave</i> —see <i>Mysore Aloes</i> also.
86, 147	Cf. <i>Motta Munjee Nar</i> , <i>Saji Mulla</i> , etc.
...	<p>“ ”</p> <p>“ ”</p> <p>“ ”</p>
100	Meaning 'Alligator Pineapple'.
102, 114	Meaning 'Wild Pineapple'. From Rumpf's account it would seem that more than one <i>Agave</i> had reached the Indian seas by the middle of the 17th Century, for the merits of the fibre were even then disputed. See also the next and the preceding.
134	Meaning 'Foreign pineapple'. Hasskarl himself later identified this with our <i>Agave</i> (t)— <i>A. Cantala</i> Roxb (see his <i>Neuer Schilleret</i> etc., 1806) and with the 'Nanas Costa' of Java mentioned by Miquel.
95	In several languages of S India signifies 'cord,' 'thread' or 'fibre'. In Hindustani it is a 'ligament' or 'sinew.'
94, 95, 127	This is not Hernandez' <i>Nequesmell</i> unless the figures have been misplaced by his editor; it looks like an <i>Agave</i> of the <i>Littoral</i> section, or, as Martius suggests, a <i>Dasyllirion</i> .

Glossary of local and commercial terms referring to the

NAME	Autherity	Language	Where used	Scientific determination
MURGA (1)	Watt F D	Bengali	Bengal	<i>Agave americana</i>
MURGA (2)	R. F. F Govern- ment of India	Bengali	Central India (Singhbum)	<i>Agave Vera</i> Cruz, Mill
MURANDRA	Pharmacop graphia Indica (III 472)	Canarese	S India	<i>Aloe</i> sp [?]
MUTTA SAGA	Govt Bota nist Madras	Telegu?	S India (Oan jann)	<i>Agave Vera</i> Cruz, Mill
MYSOOR ALOE	Pharmacop graphia Indica (III, 472)	English	S India	<i>Aloe</i> sp
NAVAS BOAYA	Rumpf	Malay	Amboyna (Malay Archipelago)	<i>Agave Cantala</i> , Roxb
NAVAS UTAM	Do	Do	Java, &c	<i>Agave</i> sp.
NANNAS SABRANG	Hasukarl (in Flora II, 1843 p 5)	Do	Java (Sunda, &c)	<i>Agave Rumphii</i> , Hasukarl
NAN	Ainslie	Tamil?	S India	<i>Agave</i> , &c
NEQUAMEYI (1)	Piso	...	S America	<i>Furcraea tu- berosa</i> , Ait

Page	REMARKS
95 96	It is not quite clear whether the older authorities regarded 'Muraga' or 'Murga' as derived from <i>Murea</i> . The ordinary word for a gamecock is commonly derived through the Persian from the Arabic but the wild bird is Indo Malayian and 'Murva' is given by some authors as a variant of 'Murgha,' so the word may be originally Indian. In N India <i>Sansevieria</i> is as much an incoiner as <i>Agave</i> (see Bengal Plants, 1054), and when <i>Murga</i> is applied in N India to <i>Agave</i> the allusion is plainly to the 'terrible spurs' as an American writer calls the spines of certain species. The habit of the leaves in <i>Sansevieria</i> may have earlier suggested a fanciful resemblance to the spur of a 'Bantam'.
86, 147	See the last, and <i>Mordān</i>
113	From the Arabic name of the true <i>Aloe</i> (see <i>Sadr</i> , etc.) and common term for the <i>drug</i> throughout India but in S India locally applied also to a 'size' or 'glue' used in house decoration, much as gilder's size is used in Europe, it seems possible that this is obtained from an <i>Agave</i> . See <i>Mysore Aloe</i> also.
86, 147	Of <i>Motta Manjee Nar Sagi Motta</i> , etc
100	Meaning 'Alligator Pineapple'
102, 114	M
184	Meaning 'Foreign pineapple' <i>Hasskari</i> himself later identified this with our <i>Agave</i> (t) - <i>A. Cantala</i> Roxb (see his <i>Neuer Schatzel</i> etc., 1806) and with the ' <i>Nanas Costa</i> ' of Java mentioned by Miqel.
95	In several languages of S India signifies 'cord,' 'thread,' or 'fibre'. In Hindustani it is a 'ligament' or 'sinew.'
94, 95, 129	This is not Hernandez' <i>Neguswell</i> unless the figures have been misplaced by his editor: that looks like an <i>Agave</i> of the <i>Littora</i> section, or, as Martins suggests, a <i>Dioscorea</i> .

NAME	Authority	Language	Where used	Scientific determination
NIQUANETL (2)	DeLaet		Antilles (Tobago)	<i>Furcraea cubensis</i> (f. Martius)
NIFI	Blanco 'El de Filip)	Filipino	Philippines	<i>Agave americana</i>
NITA	Helfour (Cyclopedias)	Tamil	S India	<i>Agave americana</i> etc
NULKUTHA	Govt Botanical Madras	Malayalam	S India (Malabar Dist)	<i>Agave Wightii</i> (of this Bulletin)
OCTLI	Hernandez	Aztec	Central America (Mexico)	<i>Agave</i> spp
OCTATLI	Gomara (in Martius et)	Do ?	Do (to)	
OFFERT		English		
PALEKANDU	Dymock (Marathi Names p 5)	Marathi	S W India	<i>Agave</i> Sp.
PALMA	Booth in Kew Sci Papers (Addl Ser II) LXIV	Spanish	Central America (Mexico)	<i>Agave</i> and <i>Yucca</i> spp
PANAM KATRAHNI	Watt F D	Malayalam	S India	<i>Agave americana</i>
PAREKAD	Ditto	Marathi	S W India	Ditto
PATHA	.	Punjabi	N W India (Indus Valley)	<i>Nannorrhops Ritchiana</i> Wendl
PATI	Hernandez		Central America (Mexico?)	<i>Agave sisalana</i> Perrine?

Page	REMARKS
91 95	In editing Markgraf's work on the Brasils De Laet added <i>Nequamest</i> and a drawing of it as it grew in Tobago, this Jacquin has identified with his <i>Agave cubensis</i> , which is taken as = <i>Furcraea cubensis</i> of Ventenat
96	This name is not in Edwards Blanco says the outer leaves are smaller than in typical 'Americana' meaning possibly <i>A. Cantata</i> Roxb
96	Fibre of different <i>Agaveae</i>
91, 147	Cf <i>Amo Kyuka</i> .
97	Hernandez does not mention 'Palque' but gives <i>Ocote</i> as the Mexican name, in his day, of the fermented liquor
98	A herb which was mixed with the Agave mead to give it strength Hernandez gives two different names for it The practice continues, and it has been suggested but probably without due ground, that the thorn apple (<i>Datura Stramonium</i> , Linn) is employed
91	A lateral shoot from the trunk or stock In the Indian species of <i>Eugave</i> these are given off under ground but the seedling develops at the surface
95	Cf <i>Parkand</i> The 'Kand' is probably = 'Kanta,' a thorn See <i>Kenda</i> , etc
98	The earliest mention of the <i>Agaveae</i> in the Islands compares the <div style="text-align: right;">in Tula Zictecua, and</div> to different kinds of <i>Agave</i> the Palma loca, Palma real
96	Cf <i>Anak Kakra hai</i> , etc.
96	Cf <i>Palkande</i>
	See <i>Aloe</i> (2) <i>Pesh</i> and <i>Wild aloe</i>
117	This does not seem to be either Spanish or Mexican and no Aztec equivalent is given The sketch suggests a <i>Furcraea</i> , or <i>Agave</i> (II) (the spineless form) It is called 'Metl lenisimum,' and is said to produce thread of the finest quality

NAME	Authority	Language	Where used	Scientific determination
PEDDA KALA HANDA NARA	Ainslie	Telegu	S India	<i>Agave vivipara</i>
PEEMAI KATHA LAI	Govt Botanist Madras	Tamil	S India (Salem)	<i>Agave</i> Sp
PEETHA KALA BANDA	Ditto	Telegu	Ditto	<i>Agave Vera Cruz, Will</i>
PEETHA KALA BATHA (1)	Drury (Useful Plants of India)	Ditto	S India	<i>Agave vivipara</i>
PEETHA KALA BATHA (2)	Brown and Wood	Ditto	Ditto	<i>Agave americana</i>
PETI KATHALAI	Govt Botanist Madras	Tamil	S India (Madras Trincovelli)	<i>Agave Vera Cruz, Will</i>
PEMM	Dodge	Maya Indian	Central America (Yucatan)	<i>Ciba pentandra</i>
PEMMANAW	Smith's 'Virginia' (Sloane)	..	N America?	<i>Aloe Fucose folius</i>
PENCA	Blanco &c	Spanish	Mexico, Philip- pines, &c	<i>Agave</i> Sp
PEKH	Liotard	Russian	Beluchistan and Indus Valley border	<i>Nannorrhops Ritchieana, H. Wendl</i>
PETHA KALA BATHA	Watt E D	Telegu	S India (Bellary)	<i>Agave americana, Linn</i>
PETEX	Squier	Spanish	Central America (Guatemala)?	<i>Tucca gloriosa</i>
PIANTE DE CENT ANNI	Danielli	Italian	Italy	<i>Agave americana</i>
PIET (1)	J Commelin (Ed Kuggelaar)	Dutch	Antilles	<i>Fourcroya foetida</i>
PIET (2)	Boerhaave	Do	Ditto (Curacao)	<i>Fourcroya, sp?</i>

Glossary of local and commercial terms referring to the

NAME	Authority	Language.	Where used	Scientific determination
PINON	Squier	Spanish	Cuba	Agave or Furcræa, sp.
PISUELLA	Do.	Do.	Central America (Panama, &c.)	<i>Bromelia sylvestris</i>
PIT	Hermann	Dutch	Antilles	Furcræa †
PITA (1)	Ditto	Spanish or Carib	Ditto	Ditto
PITA (2)	Martius	Carib	Ditto	Agave and Furcræa, spp.
PITA (3)	Ditto	Portuguese	Portugal	<i>Agave americana</i>
PITA (4)	Dodge	Spanish	America	Agaveae, Bromeliaceae, and Palmas, spp
PITA (5)	Squier	Do	Central America (Panama, &c.)	<i>Bromelia sylvestris</i>
PITA (6)	Kew Sci. Papers (Addl. Ser II) XLVI	English	Turks Islands	<i>Agave rigida</i> var. <i>sacchara</i>
PITA BROMELIA	Ditto	Do	Central America (Honduras)	Ditto
PITA DE ZAYATERO	Socmann, Botany, Voyage of the Herald, p. 215	Spanish	Central America (Panama)	<i>Bromelia karatas</i> , Linn.

Page	REMARKS
98	No doubt from 'Pins,' meaning, 'wild pineapple'
93, 98	'Pina' is the 'Pine apple,' <i>Pinnella</i> = <i>Karatas Plumieri</i> , Morren probably See <i>Pita</i> (3)
94, 95	" " " " " "
94, 95	" " " " " "
97	Martius thinks <i>Pita</i> is the Carib equivalent of the Haitian <i>Henequen</i> , but leaves it in doubt to what species it was applicable The Cabuya of the 'pamards' was he considers a <i>Furcraea</i> and the Island 'palms' of Peter place he says acco in the W. id very widely, ndia
99	See also <i>Piters</i>
"	A general term on the Caribbean coast and Islands for the longer staples obtained from <i>Agaveae</i> and <i>Bromeliaceae</i> In S America it is replaced by <i>Coraguata</i> and <i>Ibera</i> with their variations <i>Pita</i> is often used with a specific addition, e.g., <i>Pita de corajo</i> (a <i>Palma</i> fibre) <i>Pita pinnella</i> (see the next), etc In India it is restricted to <i>Enaglate</i>
93 98	In Panama and on the adjoining coast <i>Pita</i> is or was equivalent to <i>Jute</i> (1), or <i>Pinnella</i> , which is usually, we think, <i>Karatas Plumieri</i> , Morren Cf <i>Bromelia Pita</i> , <i>Jute</i> (1) and (2), <i>Pita Bromelia</i> , <i>Pinnella</i> , <i>Silk Grass</i> &c
"	<i>Agave sisalana</i> , Perrine—te (6)
93 98	This fibre was highly reported on as a fine fibre by London firms many years ago It is said to be produced from <i>Karatas Plumieri</i> Morren (= <i>Nidularium Karatas</i> , Lam.) which we identify with a plant that thrives in the Sibpur garden See <i>Jute</i> (1), <i>Bromelia pita</i> , and <i>Silk Grass</i> .
93 98	Meaning 'Shoemakers thread' The leaves of the plant (says Seemann) furnish a strong fibre He adds that the thread is extensively used by shoemakers. This is said of other 'Pita' fibres also by various authorities <i>Bromelia Karatas</i> Lam. is = <i>Karatas Plumieri</i> , Morren

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
PITA FIBRE	Cameron (Bangalore Cat)	English	S India (Mysore)	<i>Agave americana</i>
PITA FLAX	Clehorn (Forests and Gar- dens of S India)	Do	S India	Ditto
PITA FLOTA	Dolgo	Spanish	Central America (Costa Rica)	<i>Furcraea gigantea</i>
PITA HEMP	Do	Do	America	<i>Yucca</i> and <i>Furcraea</i> spp
PITA KALA BANTHA	Halfour (Cyclopes da)	Tamil	S India	<i>Agave</i> , sp
PITE (1)	Du Tertre (in Sloane)	French	Antilles	<i>Agave</i> or <i>Furcraea</i> sp
PITE (2)	Do	Do	Do	<i>Tillandsia</i> sp
PITE D'HAITI	Fassio (in Journ d' Agric Trop 1904, No. 41 p 343)	French	France, Algeria &c	<i>Furcraea</i> sp
PITEIRA	Martius	Portuguese	Portugal and Brazil	<i>Agave americana</i>
PITHA KALA BANDA	Halfour (Cyclopes dia)	Tamil	S India	<i>Agave vivipara</i> Linn
PITHA KALA- BUNTHA	Watt & B	Do	Do	<i>Agave americana</i> , Linn.
PITTA	Humboldt &c	Spanish	America and West Indian Islands	Ditto

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
PITTA ANETZ	Sloane	Malagasey	Madagascar	<i>Aloe Yuccae folius</i>
PITTE	Lamarck Dict. I 88	French	France and French colonies	<i>Agave foetida</i> Linn
POLA	...	English	Cosmopolitan	Agaveae
P'OLE PLANT	Mrs. Gdn. Report, 1898	Ditto	America	Ditto
POOTY MUNGEM	Mad Esh Cat. 1857	Canarese	S India (Mysore)	<i>Aloe</i> sp.
PULQUE	Humboldt (and others)	Spanish	Central America (Mexico)	<i>Agave</i> , spp.
PULQUE AGAVE	Squier, Bates, and others	English	Ditto	<i>Agave mexicana</i>

Page	REMARKS
88 113	We have not traced Sloane's authority (possibly an edition of De Macourt's work) but the plant was perhaps a <i>Sonsereria</i> or the
	"
	"
	"
100	See <i>Anana de Pite</i> , <i>Bowstring Hemp</i> (3) and <i>Laffa</i> Identified by Lamarck with a <i>Furcraca</i> grown in the <i>Mauritius</i>
80	The scape or flowering stem of <i>Eugais</i> and <i>Furcraca</i> . When this is thrown up from the trunk the plant is said to 'pole' Cf <i>Hampe</i> , <i>Mast</i> , and <i>Maypole</i>
81	<i>Bulbi</i> , which see
96	This is given as the source of ropes which were carefully tested at the Arsenal and exhibited in 1857 at Madras. 'Pooty Munjee' is referred to ' <i>Hibiscus cannabina</i> '. See also <i>Cuthala Nar</i>
	obscure and the statement that <i>Pulco</i> is an Araucanian word for a drink of Peru wants confirmation. 'Pulcro' is a Spanish word, and <i>Pulco</i> or <i>Pulque</i> may be derived from it. <i>Pulqueria</i> is a shop or booth for the sale of <i>Pulque</i> also called <i>Cantina</i>
98, 140, &c	The true <i>Agave</i> all intents known at Whether <i>A. cana</i> and <i>A. mexicana</i> of S. Europe is one of the <i>Pulque</i> yielding species or not remains doubtful. Recent American authorities mention <i>A. alrovirens</i> of Karwinsk (which is commonly identified with <i>A. salmiana</i> Otto) as the chief source in the <i>Apam</i> plain and other centres of the <i>Pulque</i> cultivation. This appears to be near our <i>Agave</i> (C) sometimes called but wrongly ' <i>A. Jacquiniana</i> '. ' <i>Agave mexicana</i> ' is a name to which there is practical objection. <i>Ignatio Blasquez</i> (quoted by Dodge) states that there are 33 varieties of <i>maguery</i> which grow or are cultivated in the <i>Apam</i> district and 10 <i>Pulque</i> <i>Maguerys</i> in <i>Cholula</i> . The brothers <i>Blasquez</i> held that the best species of <i>Pulque</i> <i>Maguery</i> was undescribed, and named it ' <i>A. Maximiliana</i> ' but their distinctions were too fine for either scientific or industrial purposes apparently

NAME	Authority	Language	Where used	Scientific determination
QETZALYCHILI	Hernandez	Astec	Central America (Western Mexico)	Agave Wightii (of this Bulletin)
Qai	Martius	Maya Indian	Central America (Yucatan, &c)	Agaveae spp.
RAIL KATTALAI	Govt. Botanist Madras	Tamil	S India (Tanjore)	Agave Vera Cruz, Mill.
RAILWAY ALOE	Do.	English	S India	Ditto
RAIZ DE ZACATON	Kew Sel Papers Addl. (Ser. II) LXXIX	Spanish	Central America (Mexico)	Epicampea Macrocarpa, Bth.
RAKAS	Balfour (Cyclopaedia I. 51)	Hindustani	S. India	Agave americana
RAKASHI MAT-TALU.	Moherji (Desc. Cat Ind Prod Amsterdam, etc)	Telegu	Do	Agave americana
RAKASHI NATTA	Govt Bot. Madras	Telegu?	S. India (Ganjam)	Agave Vera Cruz, Mill.

Page	REMARKS
91, 102 147	The drawing and description of this 'Metl' answer well to our Agave (J), by any name country about warm places it 'Metl Pitao' (i.e. 'Thread Agave') and that the fibre was prized specially for cloth weaving. It is plainly a <i>Esagave</i> , and though the stock of <i>Theomefel</i> is like that of <i>A. Wrightii</i> in the sketch, the leaf of this other is much nearer (J)—or the <i>Tegula</i>
145	'Qui' or 'Quil' seems to mean herb or 'grass' in several languages of Central America, and in Yucatan was applied to the fibre yielded by various <i>Agaves</i> , <i>Furcraeas</i> and <i>Bromeliaceas</i> . The <i>Maya Qa che</i> country extends from near Vera Cruz to San Salvador taking in both coasts from Guatemala to Honduras but towards Mexico Yumiere, ars that Central Mangue dynasty) <i>Magwey</i> (2) and <i>Magweys</i> (1)
86, 147	Railway Aloe See the next
86, 147	In Madras the 'Railway Aloe' is commonly Agave (D). In Northern India the same species has been used in parts for railway fencing, but in the drier tracts Agave (F) has been substituted. Agave E is used also.
..	Often called (see Dodge) simply 'Rai', i.e. roots. Cf. <i>Aloe fibre</i> , <i>Broom root</i> , <i>Brush fibre</i> , <i>Mexican fibre</i> , <i>Mexican Whisk</i> and <i>Reju</i> . <i>Rais</i> is said to be corrupted into 'rice root'.
	From the Sanscrit <i>Rakshasha</i> = an evil demon. Names of Agave species are frequently compounded with this (See <i>Bramarakashie</i> , etc.) Sjellel in old reports etc as 'Rakus'.
98	See also <i>Rakshi Matalu</i> under <i>Agave americana</i> in Watt F.D., and the following
80, 147	Ditto ditto

NAME	Authority	Language	Where used	Scientific determination
RAKASI NATTALE	Govt Botanist Madras	Telegu	S India (Nellore)	Agave Vera Cruz, Mill
RAKAS PATTI	Watt, E D	Hindustani	India (Deccan)	Agave americana
RAKSHASHA BAZI	Govt Botanist Madras	Telegu	S India (Cuddapah)	Agave Vera Cruz, Mill
RAM HANS	R F P., Govt of India	Hindi	Rajputana? (Jaipur)	Agave Cantala, Loxb
RAMBANSKORHA	Suplt Govt Gardens U P Agra and Oudh	Do	N W. India (Baharam pore, etc)	Ditto
RAMKANTA	Watt E D	Do	India	Agave americana Linn
RASPADOR	Goulter	Spanish	America West Indies and Pacific Islands	...
RAYANA	Ainalis	Canarese	India	Aloe perfoliata, Linn
RAYANA MESHI	Buchanan (afterwards Hamilton)	'Karnataka' (i.e. Canarese)	S India (Mysore)	Agave vivipara
RFDA AOWAS	Liotard	Guzarati	Western India	Agave Sp
REJU	Imp Inkoi hand bot (Ind Sec) No 12	Bengali	India (Calcutta)	Epicampes macrocarpa Bth ?

Page	REMARKS
86, 147	See also 'Rakashmatahu' under <i>Agave americana</i> in Watt E. D. and the following
■	Possibly our Agave (D) 'patta'—leaf in Hindustani;—also spelled Rakis pattah
86, 147	Cf. the preceding
87, 147	'Divine (i.e., wild) bamboo.'
87, 140	See the preceding and <i>Bansheera</i> , applied to (f) ■ contrasted with (J)
96	Cf. <i>Rambans</i> ('Kanta'—'thorn' or 'prickly shrub,' etc)
..
118	Ainslie states that (with the scape presumably) this attains 10—12 feet in ■ India
91, 181, 147	Agave (J)—'A carypara' of Wight, not of Linnaeus. Ainslie says that Ravana Meshid is Canarese for a true <i>Aloe</i> , which produces the drug in India
	Evidently a survival from the days of Portuguese ascendancy <i>Redonet</i> and <i>sonas</i> —pineapple Cf. <i>Cravata de rede</i> Agave fibres used by fisher folk on the Indian coasts and islands for nets, etc.
	Imported formerly from Mexico for brush making The best supply of 'whisk' seems to come from the N W Terai (Muzaffargarh etc) and to consist of the roots of one or more <i>Andropogon</i> ■ <i>Rais de Zacaton</i>

NAME	Authority	Language	Where used	Scientific determination
SABDARE	Furakohl Fl Aeg. Arab	Arabic	Arabia Felix (Yemen)	<i>Aloe maculata</i>
■ 128	Do	Do	Asia Africa, etc	<i>Aloe officinalis</i>
SACCI	Fugel mann	Maya In dian	Central America (Yucatan)	<i>Agave rigida</i> var. <i>longifolia</i> } <i>Agave</i> sp }
SACQUI	Martius	Ditto	Ditto	
SAGAYARA	Madras, Exh Cat, 1855	Telegu	S India (Masuli patam)	<i>Sansevieria</i> ?
SAGAYARA MATHA	Govt Bota nist Mad ras	Ditto	S India (Kistna)	<i>Agave Vera</i> Cruz, Will
SAGI MATTA	Balfour (Cyclo pedia)	Telegu	S India	<i>Agave americana</i>
SAMATO	Balfour (Cyclo pedia)	Telegu	S India	<i>Fourcroya can tula</i>
SAMBA KATTALAI	Govt Bota nist Mad ras	Tamil	S India (Salem)	<i>Agave</i> sp.
SAN KA NAR	Watt, E D	Deccani	S India (Deccan)	<i>Agave americana</i>
SAUGA ROPE	Madras Exh Cat, 1857	Telegu	S India (Gun toor)	<i>Sansevieria</i> <i>Zeylanica</i>
SATGOO NARA	Do	Do	S India (Vizian nagram)	Ditto
SATARRA	Martius	Sicilian	Sicily	Ditto
SEASIDE ALOE	Annals Nat Med (1826) II 169	English	S India	<i>Aloe littoralis</i> , Koenig

NAME	Authority	Language	When used	Scientific determination
SEEMA KATHALAI	Govt Botanist Madras	Tamil	S India (S Arcot)	<i>Agave Wightii</i> (of this Bulletin)
SEEMA KATTALAI	Do	Do	S India (Tanjore)	Idio
SEEMAI KATTALAI	Do	Do	S India (Sivnerelly)	<i>Agave</i> sp
SEEMAY TALAY	Mal Fsh Cat 1837	Tamil	S India (Chingleput)	<i>Fourcroya gigantea</i>
SEEMAY KATHAI	Brown and Wood	Tamil?	S India	<i>Furcraea gigantea</i> , Vent.
SEEMAY KUTTALAI	Madras Fsh Cat 1855	Tamil	S India (Madras)	<i>Furcraea</i> sp
SEEPPI KATTALAI	Govt Botanist Madras	Tamil	S India (Tanjore)	<i>Agave Vera Cruz</i> Mill.
SEMPREVIVA	Danielli	Italian	Italy	<i>Agave americana</i> Linn
SEUBARA	Balfour (and others)	Arabic	N. Africa	<i>Agave americana</i>
SEUTALORS	Mad Exh Cat. 1855	English	S. India (Mysore)	<i>Agave americana</i>
MILK GRASS (1)	Spou	English	England and America	<i>Didymium Karatas</i>

Page	REMARKS
91, 147	Cf <i>Samba Kattalai</i> and the following.
91, 147	Ditto ditto
87	See <i>Samba Kattalai</i> .
94, 98	Also spelled 'Cuttalay' Cf. <i>Sesma Kattalai</i>
94, 95	Cf the preceding
94, 95	'The small Aloe', and should therefore be a true <i>Aloe</i> , not see the preceding
...	Cf also the preceding
114	The true <i>Aloe</i> ,—and hence the <i>Agave</i> ,—was called 'Sempervivum' and 'Alzoon' in Mediaeval Europe with reference to their tenacity of life, but the connected traditions (see <i>Sabr</i>) are of Syrian (or Nubian) origin
96	See <i>Sabbare</i> , <i>Sabr</i> , and <i>Saparra</i>
118	The scientific names of this and <i>Long Aloe</i> seem to have been transposed (See <i>Long Aloe</i>)
93 96	Spon's reference is correct for the coast from the Gulf of Campechy
	<p>guata (1) <i>Caraguala</i> V, <i>Caroata</i>, <i>Corratow</i>, <i>Gracata</i> <i>Gracatha</i>, <i>Henequen</i> (1), <i>Istle</i> (1) and (2), <i>Ixtle</i> (1) and (2), <i>Ixtli</i> (1) <i>Karaota</i>, <i>Mexican Fibre</i> (3), <i>Pinnella</i>, <i>Pita</i> (3), <i>Pita Bromelia</i>, and <i>Pita de Zapateros</i>, also the following</p>

NAME	Authority	Language	Where used	Scientific determination
SILK GRASS (2)	Temple (in Journal Soc. of Arts, V. 125)	English	Central America (British Honduras)	<i>Bromelia sylvestris</i>
SILK GRASS (3)	Dodge	Ditto	England and America	<i>Bromeliaceae and Agaveae</i>
SILK GRASS (4)	Kew Sci. Papers (Add. Ser II) LXV	Ditto	Jamaica	<i>Furcraea cubensis, Haw</i>
SILK OF GRASS	Hariot (in Sloane)	Ditto	Central America	<i>Aloe Fuccae folius</i>
SIMAI KATHALAI	Mukerji	Tamil ?	S India	<i>Furcraea gigantea</i>
SIME KATTALAI	Balfour (Cyclopaedia)	Telegh	Ditto	<i>Fourcroya Can- tula Haw.</i> [formerly <i>Agave Cantula Roxb</i>]
SIME KATTALAI	Liotard	Canarese	S India (Mysore)	<i>Agave vivipara</i>
SIMOOOHOO KUT- TALAI	Ainslie, Mat. Med 1826, n— 169	Tamil	S India	<i>Aloe littoralis, Koenig</i>
SISAI	"	"	"	"

Page	REMARKS
93	From Temple's description this name, given by the denizens of British Honduras to the 'Isle' or 'Pata Bromelia' (which see), probably indicated <i>Karatas Plumieri</i> , L. Morren: for fuller references see the preceding
98	"Some of the species of fibres that have been called Silk grass . . . are <i>Ananas sativa</i> , <i>Karatas Plumieri</i> , <i>Bromelia sylvestris</i> , <i>Furcraea Cubensis</i> , and other similar forms, while the name has even been applied to the fibre of some of the Agaves. Its use, therefore, without the botanical name of the species can only add to the confusion which already exists"
94, 95, 98, 123	Sir Daniel Norris thinks that <i>Furcraea cubensis</i> may also be a source of silk grass fibre in Yucatan (cf. <i>Swal Hemp</i> and <i>Cajon</i>)
Do	See <i>Grass Silk</i> , etc
94, 95	Cf <i>Sesmy Kathalay</i> above
94, 95	Probably Mauritius Hemp, wrongly identified with Agave (E) in consequence of Haworth's having transferred Roxburgh's plant from <i>Agave</i> to <i>Furcraea</i> , erroneously
Do	As the fibre is said to be very long, fine, and white, and the English name is given as 'Green aloe,' the fibre was no doubt Mauritius Hemp, and from a <i>Furcraea</i> . See <i>Green Aloes</i> also. Cf. <i>Kattali</i> , &c, and see also <i>Kattalay</i>
	A port on the coast of Yucatan, formerly the chief outlet for the fibre of the Mer de d'atret. The export trade is said to have now shifted to Progreso.

NAME	Authority	Language	Where used	Scientific determination
SIKAL HENF	Martius (Beitrag etc p. 39), also Kew Sci Papars (A Isl. Ser II) XLII and XLIX	English	Cosmopolitan	Agave longifolia, Engelm. Agave sisalana, Perrine, etc
SMALL ALON	Atkins Nat Med (1826) p. 169	English	India	Alstonia littoralis Koenig

NAME	Authority	Language	Where used	Scientific determination
TABAGO GRASS	SILK Hodge	English	America	<i>Farcraea cubensis</i>
TACORI	J. Haughton and Sloane	[Tupi in Him]	4 America	<i>Aloe luccas folia</i> (Sloane)
TALAHUAY	Leontard	Castilian	1 India (Myso re)	<i>Pavlovskia odoratissima</i>
TAPACHULA	Rose	Mexican	Central America (Mexico)	<i>Agave striatipara</i>
TAMPICO				
TAMPICO FIBRE	Rose	English	America	<i>Agave sp.</i>
TEQUILA (1)	Rose (and others)	Spanish	Central America (Mexico)	<i>Agave sp.</i>

Page	REMARKS
74, 95	<p>Cf <i>Silk Grass</i> (3) and (4) and <i>Nequameil</i> (2) Also spelled 'Tobago'. Du Roi's drawing of the plant he called <i>Nequameil</i> (which see) was made in Tobago.</p>
	<p>The older writers seem to have connected this in some way with the <i>Agaveae</i>, but it was doubtless the <i>Togoara</i> fibre now ascribed to <i>Guadua Togoara</i> Kunth (of the Bamboo family).</p>
	<p>'Iale' is properly a palm, but often applied to species of <i>Pandanus</i> in S India.</p>
	<p>Mr Rose is referring doubtless to <i>Agave vivipara</i>, Baker, of which the description answers <i>A. vivipara</i> of Wight, <i>sc</i> (3) of this Bulletin. He observed it in Jalisco and Zacatecas on the sides of hot ravines, where thread is got from it for household uses. So far as we can judge from his description, the 'Tapemete' is not the plant called <i>A. vivipara</i> by Buchanan, and figured by Wight though it may be very near it. It is probably the <i>Tepezacallis</i> of Hernandez.</p>
	<p>A port bordering on the State of Vera Cruz (in the Mexican Republic) from which fibre collected in <i>Tula</i>, <i>Zacatecas</i> and other upland tracts is exported for brush making.</p>
	<p>This has often been regarded as co-extensive with 'Istle' and obtained in great part from '<i>Agave heteracantha</i>' but there is considerable doubt as to what <i>Agave heteracantha</i> is now to the Mexico principle parts of British an Agave at all. Also sometimes called 'Tampico Hemp' (unless this is really something quite different).</p>
98	<p>A liquor (spirit) made from the sap of an <i>Agave</i>, chiefly in the States lying westwards from the capital (<i>Jalisco</i> etc). Mr Rose says that the leaf is very narrow, and that it may be the same as <i>Huila</i> (which see), but in any case is not <i>A. americana</i>. If <i>Huila</i> be the same then it yiel is fibre also.</p>

NAME	Authority	Language	Where used	Scientific determination
TEQUILA (2)	Nelson	Mexican	Central America (Mexico)	Agave sp.
THALAY NAR	Mad Exb Cat 1857	Canarese	S India (Madura)	<i>Pandanus odoratissimus</i>
THENU NARUT	Lioliard	Burmese	Burma (Mergui)	<i>Agave americana</i>
THROMETEL	Hernandez	Astec	Central America (Mexico)	Agave sp
TOCCON	J Bauhin	Brazilian	E America	.
TOL	Martius	French	Antilles	<i>Eurcea cubensis</i>
TOUCON	Lery (in Eloane)	Do	Do	<i>Aloe Luccas folius</i>
TOW
TRAY TEE	Martius	English	Malaya (Singapore)	<i>Artocarpus</i> sp

Glossary of local and commercial terms referring to the

NAME	Authority	Language	Where used	Scientific determination
VENETIAN WHISK	Kew Sci Papers (Addl. Series II) LXXIX and LXXX	English	Europe, etc.	<i>Chrysotegon Gryllus</i>
VERA CRUZ	"		"	"
VERA CRUZ ALOE	Moon (Ceylon Catalogue)	English	Ceylon	<i>Agave Vera Cruz, Mill.</i>
WHITE FIBRE		English	England, India etc.	<i>Agave and Furcraea also Bromeliaceae</i>
WILAYATI ANA MAS		"	"	"
WILAYATI KANTALA	Stewart, (Punjab Plants, p. 232)	Hindustani	N W India (Punjab)	<i>Agave Americana L.</i>
WILD ALOE	Liottard	English	Beluchistan	<i>Nannorrhops Ritchieana, H Wendl.</i>
WILD ALOE FIBRE	Mad. Exh. Cat., 1857	Do.	S India (Bellary)	<i>Agave sp</i>
WILD ALOES	Mad Exh. Cat., 1855	Do.	S. India (Coimbatore)	Do.

Page	REMARKS
	See Broom root, Brush fibre (1 and 2), Mexican Whisk, etc.
...	A town and harbour on the Gulf of Mexico (State of Vera Cruz), which was and still is the chief seaport of the central parts of Mexico. It lies in the warm coast strip below the plateaux and the way largely to the Vera Cruz is very near it.
181	Agave (D) most likely. We have seen no Ceylon specimens. The name has often been used in Europe also, but it is not always easy to say which species may have been intended. The true plant was
...	
...	
...	See <i>Bilat, ananas</i>
95	This was doubtless on the supposition that Agave (J), which is self-
...	
...	See also <i>Pish</i> and <i>Aloe</i>
96	No doubt (J) or (D). Sent in 1855 from <i>Nellore</i> without close to
Do	Ditto
	Ditto
	Ditto,

NAME	Authority	Language	Where used	Scientific determination
YASHQUI	Engelmann	Maya Indian	Central America (Yucatan)	<i>Agave sisalana</i> , Perrine
YAXCHE	Dodge	Aztec	Central America (Mexico)	<i>Bombax ceiba</i>
YAXOI	Miss Gdn Rept 1896	Maya Indian	Central America (Yucatan)	<i>Agave sisalana</i> , Perrine
YAYUGA CALABUNDA FIBRE	Mad. Exh. cat., 1857	Telegu	S. India (Kurnool)	<i>Aloe perfoliata</i>
YENUGA KALABANDA	Govt Botanist Madras	Do	S India (Guntur, Kurnool, Nellore)	<i>Agave Vera Cruz</i> , Mill.
YENUGA KALABANDA	Do.	Do	S India (Cuddapah)	Ditto
YENUGA KALAMANDA	J. A C Bowell (Nellore Manual)	Do.	S India (N.lore)	<i>Agave</i> sp
YETLE	Miss Gdn Rept. 1896	Mexican	Central America (Arizona Texas and southwards)	<i>Agave Lechuguilla</i> , Torrey and allied species
YOGAT	Mad. Exh. cat. 1855	Canarese?	S India (Mysore)	<i>Aristolochia indica</i>
YUCCADA FIBRE	Mad. Exh. Cat. 1857	Aztec	Central India	...

NAME	Authority	Language	Where used	Scientific determination
YASHQUI	Fengelmann	Maya Indian	Central America (Yucatan)	Agave sisalana Perrine
YAXCHE	Dodge	Aztec	Central America (Mexico)	Bombax ceiba
YAXCI	Miss Gdn Rept 1896	Maya Indian	Central America (Yucatan)	Agave sisalana, Perrine
YANUGA CALA BUNDA FIBRE	Mad Fsh cat, 1857	Telegu	S India (Kurnool)	Aloe perfoliata
YENUGA KAYA BANDA	Govt Botanist Madras	Do	S India (Guntur, Kurnool, Nellore)	Agave Vera Cruz Mill
YENUGA KALA BANDA	Do	Do	S India (Cuddapah)	Ditto
YENUGA KALA BANDA	J A C Boswell (Nellore Manual)	Do	S India (Nellore)	Agave sp
YETLE	Miss Gdn Rept 1896	Mexican	Central America (Arizona Texas and southwards)	Agave Lechuguilla Torrey and allied species
YUCAY	Mad Fsh cat. 1855	Canarese?	S India (Mysore)	Aristolochia indica
YUCCADA FIBRE	Mad Fsh Cat 1857	Aztec	Central India	..

Page	REMARKS
	Agave (G) See <i>Sisal Kemp.</i> Spelled by Marhus Yargui, and by others Yarci, Yargui &c.
	A cotton tree: the down from the capsules is used for stuffing pillows &c.
...	See <i>Fashqui</i>
...	Cf the following.
...	Cf. the following and the preceding, also <i>Swagahatanda</i> , etc
	<p>Ditto ditto ditto.</p> <p>Probably Agave (D) as above</p>
	<p> <i>Isile</i>, &c</p> <p>This is given as 'Yucay, white' and is followed by 'Yucay red' without any clue to the origin of the latter. There is evidently some mistake. Some of the Indian <i>Aristolochias</i> are known to have yielded fibre, while <i>Yekka</i>, <i>Yekkada</i>, <i>Yekada</i> &c., are names of the well known 'Yecum' (a <i>Calotropis</i>) See the next also.</p>
..	'Yuccada fibre' sent from Hyderabad was placed among 'unclassified barks' in 1857, but 'Yuccada Naru' from Bangalore was referred to <i>Yucca gloriosa</i> . <i>Yakkada Naru</i> is given in the Mysore list as paper fibres (in Liotard 'Yekkada naru') True <i>Yucca</i> and <i>Agave</i> have been a good deal confused in S. India.

NAME	Authority	Language	Where used	Scientific determination
YANQUI	Fengelmann	Maya Indian	Central America (Yucatan)	<i>Agave sisalana</i> Perrine
YAXCH	Dodge	Aztec	Central America (Mexico)	<i>Bombax esula</i>
YATCI	Miss Gdn Rept 1896	Maya Indian	Central America (Yucatan)	<i>Agave sisalana</i> , Perrine
YANUQA CALA-BUNDA FIERE	Mad Fib cat 1857	Telegu	India (Kurnool)	<i>Alse perfoliata</i>
YENUQA KALA BANDA	Govt Botanist Madras	Do	India (Guntur Kurnool Nellore)	<i>Agave Vera Cruz</i> Mill
YANUQA KALA BANDA	Do	Do	S India (Cuddapah)	Ditto
YENUQA KALA BANDA	J A C Boswell (Nellore Manual)	Do	S India (Nellore)	<i>Agave</i> sp
YATLE	Miss Gdn Rept 1896	Mexican	Central America (Arizona Texas and southwards)	<i>Agave Lechuguilla</i> , Torrey and allied species
YUCAY	Mad Exh cat. 1850	Canarezo?	S India (Mysore)	<i>Arustolochia indica</i>
YCCADA FIERE	Mad Exh Cat 1857	Aztec	Central India	..

All communications regarding **THE AGRICULTURAL LEDGER** should be addressed to the Reporter on Economic Products to the Government of India, Calcutta.

The objects of this publication (as already stated) are to gradually develop and perfect our knowledge of Indian Agricultural and Economic questions. Contributions or corrections and additions will therefore be most welcome

In order to preserve a necessary relation to the various Departments of Government, contributions will be classified and numbered under certain series. Thus, for example, papers on Veterinary subjects will be registered under the Veterinary Series; those on Forestry in the Forest Series. Papers of more direct Agricultural or Industrial interest will be grouped according as the products dealt with belong to the Vegetable or Animal Kingdom. In a like manner, contributions on Mineral and Metallic subjects will be registered under the Mineral Series

All communications regarding THE AGRICULTURAL LEDGER should be addressed to the Reporter on Economic Products to the Government of India, Calcutta.

The objects of this publication (as already stated) are to gradually develop and perfect our knowledge of Indian Agricultural and Economic questions. Contributions or corrections and additions will therefore be most welcome.

In order to preserve a necessary relation to the various Departments of Government, contributions will be classified and numbered under certain series. Thus, for example, papers on Veterinary subjects will be registered under the Veterinary Series; those on Forestry in the Forest Series. Papers of more direct Agricultural or Industrial interest will be grouped according as the products dealt with belong to the Vegetable or Animal Kingdom. In a like manner, contributions on Mineral and Metallic subjects will be registered under the Mineral Series.

